UNIVERSIDADE FEDERAL DO PARANÁ

THAMARA ZACCA BISPO TAUMATURGO

REVISÃO TAXONÔMICA DOS GÊNEROS NEOTROPICAIS *PARYPHTHIMOIDES* FORSTER, 1964 E *CISSIA* DOUBLEDAY, 1848, COM DESCRIÇÕES DE SEIS NOVOS GÊNEROS E 10 NOVAS ESPÉCIES DE EUPTYCHIINA (LEPIDOPTERA: NYMPHALIDAE: SATYRINAE)

CURITIBA

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Thamara Zacca Bispo Taumaturgo

Revisão taxonômica dos gêneros Neotropicais *Paryphthimoides* Forster, 1964 e *Cissia* Doubleday, 1848, com descrições de seis novos gêneros e 10 novas espécies de Euptychiina (Lepidoptera: Nymphalidae: Satyrinae)

Tese apresentada como requisito parcial à obtenção do grau de Doutor em Ciências Biológicas, no Curso de Pós-Graduação em Entomologia, Setor de Ciências Biológicas, da Universidade Federal do Paraná.

Orientadora: Profa. Dra. Mirna Martins Casagrande

Co-orientadores: Prof. Dr. Olaf Hermann Hendrik Mielke
Dra. Blanca Huertas

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Profa. Dra. Mirna Martins Casagrande (Orientadora)
(UFPR)

Prof. Dr. André Victor Lucci Freitas
(UNICAMP)

Eduardo de P. Barbosa
Prof. Dr. Eduardo de Proença Barbosa
(UNICAMP)

Dr. Fernando Maia Silva Dias
(Pós-doc UFPR)

Prof. Dr. Rodrigo dos Santos Machado Feitosa
(UFPR)

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"We are hardly prepared to split the genus [Euptychia] on such slight and variable characters, though this may be necessary at some future day. But to do so a close examination of the majority of the species will be necessary, as well as comparison with the surrounding genera"

(Godman & Salvin em "Biologia Centrali-Americana")

"E as dúbias sombras tomavam forma (...) e as linhas desenhavam-se nítidas, e tudo se ia esclarecendo e tudo se aclarava (...)"

(Aluísio de Azevedo em "O cortiço")

RESUMO

A presente tese consiste em quatro capítulos. No Capítulo 1, *Paryphthymoides* Forster, 1964 é revisado e compreende 12 táxons: *P. poltys poltys* (Prittwitz, 1865), *P. poltys binalinea* (Butler, 1867) **comb. n.**, **stat. n.**, *P. vestigiata* (Butler, 1867), *P. terrestris* (Butler, 1867) **comb. n.**, *P. touloulou* (Benmesbah, 2015) **comb. n.**, *P. brixius brixius* (Godart, [1824]) **comb. n.**, *P. brixius brixiola* (Butler, 1867) **comb. n.**, **stat. n.** e mais cinco espécies novas. *Paryphthimoides zeredatha* (Butler, 1869) e *P. numilia* (C. Felder & R. Felder, 1867) são novos sinônimos de *P. poltys poltys* (Prittwitz, 1865) e *P. poltys binalinea* (Butler, 1867) **comb. n.**, **stat. n.**, respectivamente. No Capítulo 2, três novos gêneros são descritos: *Gênero A* Zacca, Casagrande & Mielke, **gen. n.** composto por *Gênero A argulus argulus* (Godart, [1824]) **comb. n.**, *Gênero A argulus* ssp.1 Zacca, Casagrande & Mielke **ssp. n.**, *Gênero A difficilis* (Forster, 1964) **comb. n.**, *Gênero numeria* (C. Felder & R. Felder, 1867) **comb. n.** e *Gênero A* sp.1 Zacca, Casagrande & Mielke **sp. n.**; *Gênero B* Zacca, Casagrande & Mielke, **gen. n.** compreende *Gênero B grimon* (Godart, [1824]) **comb. n.**; *Gênero C* Zacca, Casagrande & Mielke, **gen. n.** composto por *Gênero C flavofascia* (Zacca & Siewert, 2014) **comb. n.** Neste capítulo, *Euptychia undulata* Butler, 1867 é transferida para *Hermeuptychia* Forster, 1964 e *Neonympha melobosis* Capronnier, 1874 é transferida para *Taydebis* Freitas, 2003, sendo *Taydebis peculiaris* (Butler, 1867) um novo sinônimo de *T. melobosis*. No Capítulo 3, *Cissia* Doubleday, 1848 é revisado e compreende cinco espécies: *C. penelope* (Fabricius, 1775), *C. pompilia* (C. Felder & R. Felder, 1867), *C. proba* (Butler, 1867), *C. eous* (Butler, 1867) **comb. n.** e *C. phronius* (Godart, [1824]) **comb. n.** *Cissia moneta* (Weymer, 1911) é um novo sinônimo de *C. penelope*, e *Paryphthimoides kiliani* Anken, 1999 um novo sinônimo de *C. eous*. No Capítulo 4, *Vareuptychia* Forster, 1964 **stat. rest.** é revalidado e composto por *V. similis* (Butler, 1867) **comb. n.**, **stat. rest.** e *V. themis* (Butler, 1867) **comb. n.** Adicionalmente, *Gênero D* Zacca, Casagrande & Mielke **gen. n.** é descrito para alocar *Euptychia palladia* Butler, 1867, *E. labe* Butler, 1870 e *E. lesbia* Staudinger, [1886]. *Gênero E* Zacca, Casagrande & Mielke **gen. n.** é descrito para alocar *Cissia pseudoconfusa* Singer, DeVries & Ehrlich, 1983 e *C. joyceae* Singer, DeVries & Ehrlich, 1983. *Gênero F* Zacca, Casagrande & Mielke **gen. n.** é descrito para alocar *Papilio myncea* Cramer, 1780, *Cissia maripa*

Brévignon, 2005 e *Euptychia confusa* Staudinger, 1887 (com uma nova subespécie, *Gênero F confusa* ssp.1 Zacca, Casagrande & Mielke **ssp. n.**) e quatro espécies novas. Por fim, *Euptychia cleophes* Godman & Salvin, 1809 é transferida para *Megisto* Hübner, [1819]. No total, 22 lectótipos e seis neótipos são designados. São providenciados catálogos sistemáticos, informação sobre o material tipo, diagnoses comparativas, fotos e ilustrações de adultos, chaves de identificação, comentários sobre variação intraespecífica, dimorfismo sexual, biologia, fenologia, mapas de distribuição geográfica, compilação de registros de planta hospedeira e estágios imaturos. Genitália feminina é ilustrada pela primeira vez para todas as espécies.

PALAVRAS-CHAVE. *Caeruleuptychia*, Lectótipo, *Magneuptychia*, *Megisto*, Morfologia, Neótipo, Taxonomia, *Vareuptychia*.

ABSTRACT

The present thesis consists in four chapters. In Chapter 1, *Paryphthymoides* Forster, 1964 is revised and comprises 12 taxa: *P. poltys poltys* (Prittwitz, 1865), *P. poltys binalinea* (Butler, 1867) **comb. n.**, **stat. n.**, *P. vestigiata* (Butler, 1867), *P. terrestris* (Butler, 1867) **comb. n.**, *P. touloulou* Benmesbah, 2015 **comb. n.**, *P. brixius brixius* (Godart, [1824]) **comb. n.**, *P. brixius brixiola* (Butler, 1867) **comb. n.**, **stat. n.**, plus five new species. *Paryphthimoides zeredatha* (Butler, 1869) and *P. numilia* (C. Felder & R. Felder, 1867) are new synonymies of *P. poltys poltys* (Prittwitz, 1865) and *P. poltys binalinea* (Butler, 1867) **comb. n.**, **stat. n.**, respectively. In Chapter 2, three new genera are described: *Genus A* Zacca, Casagrande & Mielke, **gen. n.** comprises *Genus A argulus argulus* (Godart, [1824]) **comb. n.**, *Genus A argulus* ssp.1 Zacca, Casagrande & Mielke **ssp. n.**, *Genus A difficilis* (Forster, 1964) **comb. n.**, *Genus A numeria* (C. Felder & R. Felder, 1867) **comb. n.** and *Genus A* sp.1 Zacca, Casagrande & Mielke, **sp. n.**; *Genus B* Zacca, Casagrande & Mielke, **gen. n.** comprises *Genus B grimon* (Godart, [1824]) **comb. n.**; *Genus C* Zacca, Casagrande & Mielke, **gen. n.** comprises *Genus C flavofascia* (Zacca & Siewert, 2014) **comb. n.** In this chapter, *Euptychia undulata* Butler, 1867 is transferred to *Hermeuptychia* Forster, 1964 and *Neonympha melobosis* Capronnier, 1874 is transferred to *Taydebis* Freitas, 2003, being *Taydebis peculiaris* (Butler, 1867) a new synonym of *T. melobosis*. In Chapter 3, *Cissia* Doubleday, 1848 is revised and comprises five species: *C. penelope* (Fabricius, 1775), *C. pompilia* (C. Felder & R. Felder, 1867), *C. proba* (Butler, 1867), *C. eous* (Butler, 1867) **comb. n.** and *C. phronius* (Godart, [1824]) **comb. n.** *Cissia moneta* (Weymer, 1911) is a new synonym of *Cissia penelope* (Fabricius, 1775), and *Paryphthimoides kiliani* Anken, 1999 is a new synonym of *C. eous*. In Chapter 4, *Vareuptychia* Forster, 1964 **stat. rest.** is revalidated and comprises *V. similis* (Butler, 1867) **comb. n.**, **stat. rest.** and *V. themis* (Butler, 1867) **comb. n.** Additionally, *Genus D* Zacca, Casagrande & Mielke **gen. n.** is described to allocate *Euptychia palladia* Butler, 1867, *E. labe* Butler, 1870 and *E. lesbia* Staudinger, [1886]. *Genus E* Zacca, Casagrande & Mielke **gen. n.** is described to allocate *Cissia pseudoconfusa* Singer, DeVries & Ehrlich, 1983 and *C. joyceae* Singer, DeVries & Ehrlich, 1983. *Genus F* Zacca, Casagrande & Mielke **gen. n.** is described to allocate *Papilio myncea* Cramer, 1780, *Cissia maripa* Brévignon, 2005 and *Euptychia*

confusa Staudinger, 1887 (with a new subspecies *Genus F confusa* ssp.1 Zacca, Casagrande & Mielke **ssp. n.**) and four new species. Finally, *Euptychia cleophes* Godman & Salvin, 1809 is transferred to *Megisto* Hübner, [1819]. In total, 22 lectotypes and six neotypes are designated. For all species are provided systematic catalogues, information on type material, comparative diagnosis, photos and illustrations of adults, identification key, comments on intraspecific variations, sexual dimorphism, biology, phenology, distributional maps, compilation of host plants records and immature stages. Female genitalia are illustrated for the first time to all species.

KEYWORDS. *Caeruleuptychia*, Lectotype, *Magneuptychia*, *Megisto*, Morphology, Neotype, Taxonomy, *Vareuptychia*.

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LISTA DE ABREVIATURAS

comb. n. – combinação nova.

gen. n. – gênero novo.

sp. n. – espécie nova.

ssp. n. – subespécie nova.

stat. rest. – status restaurado.

stat. n. – status novo.

HT – holótipo.

AT – alótipo.

LT – lectótipo.

SUMÁRIO

ESTRUTURA E FORMATAÇÃO DA TESE

Diante da complexidade e volume que a presente tese foi assumindo, especialmente pela sobreposição entre as espécies de *Cissia* e *Paryphthimoides* (gêneros focos do presente estudo) com vários outros gêneros de Euptychiina, não tivemos outra opção a não ser apresentá-la em forma de quatros capítulos distintos, porém conectados, para facilitar a compreensão do leitor.

No **Capítulo 1** é apresentada a primeira parte da revisão taxonômica de *Paryphthimoides* Forster, 1964, gênero atualmente composto por 13 espécies: *Paryphthimoides poltys* (Prittwitz, 1865) (espécie-tipo), *P. argulus* (Godart, [1824]), *P. difficilis* Forster, 1964, *P. eous* (Butler, 1867), *P. grimon* (Godart, [1824]), *P. melobosis* (Capronnier, 1874), *P. numeria* (C. Felder & R. Felder, 1867), *P. numilia* (C. Felder & R. Felder, 1867), *P. phronius* (Godart, [1824]), *P. sylvina* (C. Felder & R. Felder, 1867), *P. undulata* (Butler, 1867), *P. vestigiata* (Butler, 1867) e *P. zeredatha* (Butler, 1869). No presente capítulo são tratadas apenas as seguintes espécies: *P. poltys*, *P. numilia*, *P. vestigiata* e *P. zeredatha* (Butler, 1869). As nove espécies remanescentes são revisadas e discutidas nos capítulos 2 e 4 em outras combinações.

Adicionalmente, *Cissia touloulou* Benmesbah, 2015, *Euptychia terrestris* Butler, 1867 (considerada *Cissia* Doubleday, 1848 por Lamas 2004) e *Satyrus brixius* Godart, [1824] (considerada *Caeruleuptychia* Forster, 1964 por Lamas 2004) são transferidas para *Paryphthimoides* com base em evidências morfológicas. Também são descritas cinco espécies novas para o gênero, fazendo parte do "complexo *terrestris*", juntamente com *P. terrestris* e *P. touloulou*.

No **Capítulo 2**, as espécies removidas de *Paryphthimoides* (exceto *Euptychia eous* e *Satyrus phronius* que serão tratadas no capítulo 3) são revisadas e combinadas em três novos gêneros ou transferidas para os gêneros *Taydebis* Freitas, 2003 e *Hermeuptychia* Forster, 1964. Adicionalmente, uma nova espécie e uma nova subespécie são descritas para o *Gênero A* Zacca, Casagrande & Mielke **gen. n.**

O **Capítulo 3** aborda a revisão taxonômica de *Cissia* Doubleday, 1848, gênero atualmente composto por 17 espécies: *Cissia penelope* (Fabricius, 1775) (espécie-tipo), *C. cleophes* (Godman & Salvin, 1889), *C. confusa* (Staudinger, 1887), *C. joycea* Singer, DeVries & Ehrlich, 1983, *C. labe* (Butler, 1870), *C. lesbia* (Staudinger, [1886]), *C.*

maripa Brévignon 2005, *C. moneta* (Weymer, 1911), *C. myncea* (Cramer, 1780), *C. palladia* (Butler, 1867), *C. pompilia* (C. Felder & R. Felder, 1867), *C. proba* (Weymer, 1911), *C. pseudoconfusa* Singer, DeVries & Ehrlich, 1983, *C. similis* (Butler, 1867), *C. terrestris* (Butler, 1867), *C. themis* (Butler, 1867) e *C. touloulou* Benmesbah, 2015. Nesse capítulo são revisadas apenas quatro destas espécies: *C. penelope*, *C. proba*, *C. pompilia* e *C. moneta* (aqui proposta como sinônimo de *C. penelope*); as demais espécies são tratadas no capítulo 4, com exceção de *C. terrestris* e *C. touloulou* que são transferidas para *Paryphthimoides* no Capítulo 1. Com a inclusão de *Euptychia eous* Butler, 1867 e *Satyrus phronius* Godart, [1824] (anteriormente alocadas em *Paryphthimoides*), o gênero *Cissia* passa a ser composto por cinco espécies.

Já o **Capítulo 4** aborda as espécies removidas de *Cissia* (exceto àquelas tratadas no capítulo 1), sendo uma destas transferidas para o gênero *Megisto* Hübner, [1819], e as demais revisadas e discutidas sob três novos gêneros aqui descritos, bem como no gênero revalidado, *Vareuptychia* Forster, 1964.

Como considerações gerais da tese, o atual estado-da-arte da subtribo Euptychiina é discutido, além dos avanços na Taxonomia e Sistemática do grupo a partir do projeto "ARTS: Phylogeny and systematic revision of the diverse and cryptic Euptychiina", sob coordenação do Dr Keith R. Willmott (University of Florida, USA) e a colaboração de mais de 30 pesquisadores da América do Norte, América do Sul e Europa. Aqui são apresentados os principais avanços obtidos no estudo dos Euptychiina, bem como as perspectivas futuras para os interessados em explorar e contribuir para o entendimento desse grupo que atrai por sua beleza críptica, emergida de um histórico taxonômico de caos e negligência ao longo dos anos.

Os capítulos da tese estão formatados de acordo com as normas do periódico científico *Austral Entomology*.

OBJETIVOS

- **Gerais**

1) Revisão taxonômica das 13 espécies (20 táxons) do gênero *Paryphthimoides* Forster, 1964, incluindo respectivos sinônimos, e descrições de eventuais espécies novas;

2) Revisão taxonômica das 17 espécies (26 táxons) do gênero *Cissia* Doubleday, 1848, incluindo respectivos sinônimos, e descrições de eventuais espécies novas.

- **Específicos**

1) Designação de neótipos e lectótipos;

2) Descrições de novos táxons;

3) Elaboração de um catálogo e histórico taxonômico para todos os gêneros e espécies tratados na presente tese, bem como diagnoses comparativas, descrições, fotos e/ou ilustrações de adultos, venação, apêndices e genitálias (masculina e feminina);

5) Compilação de dados de distribuição geográfica e confecção de mapas para todas as espécies.

6) Compilação de registros de plantas hospedeiras e imaturos para todas as espécies.

INTRODUÇÃO GERAL

Nymphalidae é uma das famílias de borboletas mais diversificadas quanto aos hábitos e morfologia, com representantes em todos os ambientes terrestres, exceto no continente antártico (DeVries 1987; Brown & Freitas 1999). São caracterizados por apresentarem pernas protorácicas muito reduzidas em ambos os sexos (com exceção das fêmeas de Libytheinae) e olhos não emarginados na base da antena (Brown 1992; DeVries 1987). Evidências fósseis, moleculares e morfológicas apontam que a origem e diversificação de Nymphalidae ocorreram há 90 milhões de anos, durante o Cretáceo, com algumas linhagens extintas durante a transição para o Terciário, há 65 milhões de anos (Wahlberg *et al.* 2009). Atualmente são conhecidas mais de 7.200 espécies no mundo, das quais 33% ocorrem na Região Neotropical, com cerca de 800 espécies registradas para o Brasil (Freitas & Brown 2004; Casagrande *et al.* 2016).

A filogenia de Nymphalidae ainda é muito discutida, não havendo um consenso sobre as categorias taxonômicas abaixo do nível de família (Ehrlich 1958; DeVries *et al.* 1985; Harvey 1991; Ackery *et al.* 1999; Brower 2000; Wahlberg *et al*. 2003; Freitas & Brown 2004; Wahlberg *et al*. 2009). Os principais estudos sistemáticos são baseados em caracteres morfológicos e moleculares dos adultos (Ehrlich 1958; Ehrlich & Ehrlich 1967; de Jong *et al.* 1996; Weller *et al*. 1996; Brower 2000; Wahlberg *et al*. 2003; Wahlberg *et al*. 2009), sendo pouco utilizados caracteres morfológicos dos estágios imaturos (Freitas & Brown 2004).

Dentre as subfamílias de Nymphalidae, destaca-se Satyrinae com mais de 200 gêneros descritos (Lamas 2004; Wahlberg *et al* 2009; Peña *et al.* 2010) e ampla distribuição mundial. A estimativa da origem dessa subfamília é entre 60-65 milhões de anos atrás (Peña & Wahlberg 2008). De modo geral, os representantes de Satyrinae possuem hábitos diurnos e crepusculares, alimentam-se de flores e frutos em decomposição e voam a curtas distâncias, sendo mais localizados (DeVries 1987). Morfologicamente, os adultos são caracterizados por apresentarem célula discal, de ambas as asas, fechadas por veias tubulares e a base da veia subcostal da asa anterior inflada (Weymer 1910-1913; Ackery 1998). As larvas, por sua vez, são fusiformes,

tipicamente com um par de projeções cefálicas e um par de projeções anais (também conhecida como "cauda bífida") no 11° segmento abdominal (Weymer 1910-1913; Scoble 1992; Brown & Freitas 1999).

Satyrinae é composta por nove tribos: Morphini, Brassolini, Melanitini, Dirini, Zetherini, Elymniini, Amathusiini, Haeterini e Satyrini, esta última composta por 13 subtribos, com aproximadamente 2.200 espécies e maior diversidade nos trópicos (Peña & Wahlberg 2008; Peña *et al*. 2010). Acredita-se que as espécies de Satyrini se diversificaram entre 36-23 milhões de anos, no final do Eoceno, simultaneamente ao surgimento das Poaceae (Peña & Wahlberg 2008), principal planta-hospedeira do grupo. A tribo tem sido alvo de vários estudos filogenéticos, com suas relações internas parcialmente resolvidas e suportadas apenas por dados moleculares (Peña *et al* 2006, 2010; Peña & Wahlberg 2008; Wahlberg *et al* 2009; Kodandaramaiah *et al* 2010).

Dentre as subtribos de Satyrini, destaca-se Euptychiina com 400 espécies em 42 gêneros e maior representatividade na região Neotropical, apesar da distribuição disjunta de *Paleonympha opalina* Butler, 1871 no sudeste asiático (Lamas 2004; Peña *et al* 2010). Acredita-se que os ancestrais paleárticos de Euptychiina tenham se dispersado para as Américas durante o Eoceno-Oligoceno, colonizando as Américas há cerca de 31 milhões de anos atrás (Peña *et al.* 2010).

Os alicerces da taxonomia de Euptychiina foram fundados com a monografia de Butler (1867), onde foram descritas 60 espécies alocadas em *Euptychia* Hübner, 1818, baseados puramente em caracteres do padrão de coloração alar. Após quase um século, Forster (1964) descreveu 33 novos gêneros para alocar muitas das espécies anteriormente tratadas em *Euptychia*, baseado em caracteres morfológicos de venação e genitália masculina. O trabalho de Forster (1964) foi negligenciado por autores subsequentes (ex.: Emmel & Austin 1990; Singer & Ehrlich 1993) que continuavam utilizando *Euptychia* (ou mesmo *Cissia* Doubleday, 1848) em um senso mais amplo, justificando tal escolha no fato de Forster ter se baseado majoritariamente em exemplares da Bolívia e não ter apresentado diagnoses robustas para os gêneros. Esse cenário foi apenas modificado quando Miller (1968), em seu clássico trabalho sobre filogenia e biogeografia de Satyrinae, seguiu a proposta de classificação de Forster (1964) para Euptychiina. Neste mesmo trabalho, Miller (1968) propõe uma diagnose

mais robusta para a subtribo, com base em caracteres de palpo, pernas, asas e genitália masculina. Estas propostas foram seguidas por Lamas (2004), no catálogo de borboletas neotropicais. Adicionalmente, novas sinonímias e combinações para algumas espécies de Euptychiina foram propostas por Lamas (2004), sendo o trabalho mais amplamente utilizado para a classificação desta subtribo.

A primeira hipótese de relacionamento de Euptychiina utilizando um método filogenético foi proposta por Murray & Prowell (2005). Utilizando os genes COI e EF-1α, Murray & Prowell (2005) demonstraram que vários dos gêneros de Forster eram poli ou parafiléticos. Filogenias moleculares posteriores utilizando mais genes e uma maior amostragem (Peña *et al.* 2006, 2010) concordaram com os resultados de Murray & Prowell (2005) e ressaltavam a necessidade de revisões taxonômicas dos gêneros *Chloreuptychia* Forster, 1964, *Cissia* Doubleday, 1848, *Euptychoides* Forster, 1964, *Harjesia* Forster, 1964, *Magneuptychia* Forster, 1964, *Moneuptychia* Forster, 1964, *Paryphthimoides* Forster, 1964, *Pharneuptychia* Forster, 1964, *Pseudodebis* Forster, 1964, *Splendeuptychia* Forster, 1964, *Taygetis* Hübner, [1819] e *Yphthimoides* Forster, 1964. Neste contexto, o objetivo da presente tese é realizar a revisão taxonômica de *Cissia* e *Paryphthimoides*, com intuito de contribuir para uma melhor classificação e entendimento de Euptychiina.

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Revision of the Neotropical butterfly genus *Paryphthimoides* Forster, 1964 (Lepidoptera: Nymphalidae: Satyrinae), with the description of five new species.

Abstract. *Paryphthymoides* Forster, 1964 is revised mainly based on morphological evidence. Twelve taxa are now recognized in this genus: *P. poltys poltys* (Prittwitz, 1865), *P. poltys binalinea* (Butler, 1867) **comb. n.**, **stat. n.**, *P. vestigiata* (Butler, 1867), *P. terrestris* (Butler, 1867) **comb. n.**, *P. touloulou* (Benmesbah, 2015) **comb. n.**, *P. brixius brixius* (Godart, [1824]) **comb. n.**, *P. brixius brixiola* (Butler, 1867) **comb. n.**, **stat. n.** and five new species. *Paryphthimoides zeredatha* (Butler, 1869) and *P. numilia* (C. Felder & R. Felder, 1867) are new synonymies of *P. p. poltys* (Prittwitz, 1865) and *P. poltys binalinea* (Butler, 1867) **comb. n.**, **stat. n.**, respectively. To stabilize the nomenclature and establish the identity of the taxa treated in the present study, lectotypes are designated to five species: *Euptychia zeredatha* Butler, 1869, *Neonympha numilia* C. Felder & R. Felder, 1867, *Euptychia vestigiata* Butler, 1867, *Euptychia terrestris* Butler, 1867 and *Euptychia brixiola* Butler, 1867. Neotype is designated to *Satyrus brixius* Godart, [1824]. Historical systematic catalogues are provided for all species, as well as information on type material, comparative diagnosis, photos and illustrations of the adults (including venation, palpi, legs and genitalia), identification key, comments on intraspecific variations, sexual dimorphism, biology, phenology, distributional maps, and a compilation of host plant records and immature stages. A detailed analysis of female genitalic structures of *Paryphthimoides* is herein presented for the first time (except for those species with unknown females).

Keywords. *Caeruleuptychia*, *Cissia*, Euptychiina, lectotype designation, morphology, neotype designation, taxonomy.

Introduction

Paryphthimoides Forster, 1964 was described to allocate four species: *P. poltys* (Prittwitz, 1865), *P. difficilis* Forster, 1964, *P. eous* (Butler, 1867) and *P. phronius* (Godart, [1824]). According to Forster (1964) the species of *Paryphthimoides* are characterized by their small size compared to species of *Yphthimoides* Forster, 1964, ventral wings with crenulated lines and apex of valva serrated. Forty years later, Lamas (2004) included nine

more species to this genus: *P. argulus* (Godart, [1824]), *P. grimon* (Godart, [1824]), *P. melobosis* (Capronnier, 1874), *P. numeria* (Felder & Felder, 1867), *P. numilia* (Felder & Felder, 1867), *P. sylvina* (Felder & Felder, 1867), *P. undulata* (Butler, 1867), *P. vestigiata* (Butler, 1867) and *P. zeredatha* (Butler, 1869). Since its description, *Paryphthimoides* has received little attention, and no taxonomic revision has been proposed. The last two species described in the genus were *Paryphthimoides bahneri* Anken, 1994 and *P. kiliani* Anken, 1999, currently considered synonymys of *P. zeredatha* (Butler, 1869) and *P. eous* (Butler, 1867) respectively (Lamas 2004).

Similar to other genera in the subtribe, the species of *Paryphthimoides* are characterized by their dull coloration on dorsal wings, but gracile on ventral wings with their series of ocelli in the submarginal region. Species of *Paryphthimoides* are distributed widely in South America showing higher diversity in Brazil and with most species endemic to southern Brazil (Murray & Prowell 2005). Typically, species of this genus are found in open grassy and riparian habitats where the larvae are specialised on Poaceae (Brown 1992; Núnez-Bustos 2010).

The purpose of the paper is to provide a comprehensive systematic revision of *Paryphthimoides*, with morphological evidence but in light of recent molecular researches. Additionally, five new species are here described to the genus.

Material and Methods

There were examined 610 specimens, including types, from 14 public and private collections. The following acronyms were used throughout the text, and the collections not personally examined by the authors were marked with an asterisk:

AN	Andrew Neild collection, London, United Kingdom
DD	Diego R. Dolibaina collection, Paraná, Brazil
DZUP	Coleção Pe. Jesus de Santiago Moure, Universidade Federal do Paraná, Paraná, Brazil
FD	Fernando M. S. Dias collection, Paraná, Brazil.
IOC	Instituto Oswaldo Cruz, Rio de Janeiro, Brazil
MB	Mohamed Benmesbah collection, Toulouse, France*
MNHN	Muséum national d'Histoire naturelle, Paris, France
NHMUK	Natural History Museum, London, United Kingdom
OM	Olaf H. H. Mielke collection, Paraná, Brazil

RBINS Royal Belgian Institute of Natural Sciences, Brussels, Belgium*

SMTD Senckenberg Museum für Tierkunde, Dresden, Germany*

ZMHB Museum für Naturkunde der Humboldt-Universität, Berlin, Germany

ZSBS Zoologische Staatssammlung München, Munich, Germany*

ZUEC Museu de Zoologia da Universidade Estadual de Campinas, São Paulo, Brazil

The repository of the photos of all types known taken by Gerardo Lamas (Museo de Historia Natural Universidad Nacional Mayor de San Marcos, Peru) available in Butterflies of America website (Warren *et al.* 2016) was consulted, especially for those relevant names and recognized species of *Paryphthimoides*.

Male and female specimens studied had their abdomen detached and soaked in a heated test tube with 10% potassium hydroxide solution (KOH) for about five minutes to facilitated the dissection of the genitalia. The dissected specimens were marked with an asterisk after the voucher number in the examined material section. Photos of genitalia were made in two imagem labs as follows: at Sackler Lab (NHMUK) the images were obtained in cellSens Imaging Software with the aid of a video camera SC30 Olympus attached to a stereoscopic microscope trinocular SZX7 Olympus; at Taxonline (UFPR) the images were obtained in Leica LAS 3D view and LAS montage version 4.7 with the aid of a video camera Leica DFC 500 attached to a stereoscopic microscope Leica MZ16. Illustrations were prepared with the aid of a camera lucida attached to a stereoscopic microscope and posteriorly vectorised by using the software GIMP version 2.8.10 (GIMP team 2016). The FW length of all specimens listed in Examined material section was measured to evaluate if differences in size are present and related to sexual dimorphism.

Male and female genitalia terminologies are indicated in figures 43, 47 and 90, and follows mostly Klots (1970), but the term "gnathos" is applicable *sensu* Pierce (1909), "fultura superior" and "fultura inferior" *sensu* Petersen (1904) and "combination of ventral arm of tegumen and dorsal arm of saccus" *sensu* Austin & Mielke (2008). Nomenclature of venation used herein follows Kristensen (2003), and broad regions of the wing areas by Neild (1996). The extra band located at submarginal region on ventral wings between the median and submarginal lines is called "umbra", as proposed by Schwanwitsch (1924), and followed by Forbes (1941). The ocelli were referred in text as complete and incomplete; an ocellus is considered "complete" when it has all elements of the eyespot (ocellar ring, ocellar spot and pupil), while it is "incomplete" when any of these elements are missing.

Taxonomic nomenclature used herein follows Lamas (2004). Distributional maps were elaborated using the free software QGIS (QGIS Development Team 2016) and shapefile provided by Löwenberg-Neto (2014). Geographical data was obtained from label data in collections and literature.

In the section "Type material", the labels are separated to each other by transverse bars. The following abbreviations were used throughout the text: FW – forewing; HW – hindwing; DW – dorsal wings; VW – ventral wings; DFW – dorsal forewing; VFW – ventral forewing; DHW – dorsal hindwing; VHW – ventral hindwing. Information on the host plant and immature stages was compiled from label data and literature.

Results

Based on the redefinition of *Paryphthimoides* given herein (see Diagnosis section below), only two species remains in the genus: *P. poltys* (=*P. zeredatha* **syn. n.** and *P. numilia* **syn. n.**) and *P. vestigiata*. *Euptychia binalinea* Butler, 1867 is now proposed as a subspecies of *Paryphthimoides poltys*. Additonally, *Euptychia terrestris* Butler, 1867 (currently in *Cissia* Doubleday, 1848), *Cissia touloulou* Benmesbah, 2015 and *Satyrus brixius* Godart, [1824] (currently in *Caeruleuptychia* Forster, 1964) are transferred to *Paryphthimoides* (see discussion under each species below). Five more new species are described and allocated in the genus. Consequently, this study suggest that *Paryphthimoides* now comprises 12 valid taxa: *P. poltys poltys*, *P. poltys binalinea*, *P. vestigiata*, *P. brixius brixius*, *P. brixius brixiola*, *P. terrestris*, *P. touloulou*, *P.* sp.1 **sp. n.**, *P.* sp.2 **sp. n.**, *P.* sp.3 **sp. n.**, *P.* sp.4 **sp. n.** and *P.* sp.5 **sp. n.**

The remaining species previously considered as *Paryphthimoides* by Lamas (2004) will be treated in forthcoming papers (see Chapters 2 and 3) graped in new genera of Euptychiina or under new combinations.

Paryphthimoides Forster, 1964

Paryphthimoides Forster, 1964: 106; type-species *Neonympha poltys* Prittwitz, 1865, by original designation. – Miller, 1968: 94. – Lamas, 2004: 221. – Peña *et al.*, 2006: 31. – Peña *et al.*, 2010: 254.

Diagnosis. *Paryphthimoides* is distinguished from all other Euptychiina genera by the following characters: (1) Eyes densely hairy (contrasting with the glabrous eyes in *Cissia*

Doubleday, 1848, *Megisto* Hübner, 1818 and *Atlanteuptychia* Freitas, Barbosa & Mielke, 2013); (2) DW darker than VW ground colour; (3) DHW with one ocellus in CuA_1- CuA_2 (an additional small one can be present in CuA_2-2A, and some of those ocelli from the VHW might be visible through transparency in the DHW); (4) VFW with tiny black subapical ocellus circled with yellowish ring and two silvery pupils in M_1-M_2; (5) VHW with five or six ocelli from R_{4+5} to CuA_2 or 2A, being the second and the fifth about the same size, rounded with an evident black ocellar spot; the third ocellus diagonally placed (about 45° in relation to the M_3) closer to the median line; in both third and fourth ocelli, ocellar spot faded or even absent, with only ocellar ring and silvery pupils well-evident; when present, sixth ocellus about same size as the first ocellus; (6) DHW and VHW with wide and straight (or slightly crenulated) golden-brown or chestnut-brown submedian and median lines, and thin and well-crenulated dark brown submarginal line; (7) FW discal cell about 2/3 length of wing (base to apex) and projected at r-m_2 (Fig.41); (8) FW with origin of R_2 starting before r-m_1 (Fig.41); (9) FW with cubitus strongly dilated at base and 2A straight (Fig.41); (10) HW with m_2-m_3 straight, about 1 ½ length of m_1-m_2 (Fig.41); (11) male with 8th tergite trapezoid, developed, well-sclerotized at basal and apical margins (less sclerotized between these regions), basal region like a ring; 8th sternite divided in two reduced sclerotized plates or one reduced plate; (12) uncus sinuous in lateral view, dorsally with a wide median apical dilatation, apex curved downwards (Fig. 43); (13) gnathos sinuous, curved upwards, 2/3 or almost the same length as the uncus (Fig. 43); (14) appendix angularis developed, basal region wide, distal region curved downwards; (15) fultura superior absent; (16) fultura inferior narrow and in V-shape; (17) saccus developed (Fig. 43); (18) valva trapezoid, costa developed, dorsal margin projected at median region and smoothly serrated (Fig. 43); (19) aedeagus truncated at distal region in dorsal view, with two developed cornutal patches (Fig. 46); (20) female with 8th tergite trapezoid, developed and not fused with the 8th sternite; (21) papilla analis without posterior apophysis; (22) lamellae antevaginalis absent or, if present it is always reduced (Figs 89, 91); (23) lamellae postvaginalis absent; (24) ductus bursae totally membranous, longer than the corpus bursae, with paired signa.

Discussion. When describing *Paryphthimoides*, Forster (1964) compared this genus with *Yphthimoides* Forster, 1964 due their phenotypical similarities in the wings, being distinguished to each other by the shorter wingspan of the species of *Paryphthimoides*, its less dense scales, both ventral wings with crenulated lines and the apex of the valva with reduced spines. The wing characters cited by Forster are also found in species of

Hermeuptychia Forster, 1964, although there is no spines in the apex of the valva of the latter. In the other hand, species of *Yphthimoides* (or at least the type species of the genus, *Y. yphthima* (Felder, 1867), plus *Y. pacta* (Weymer, 1911) and *Y. celmis* (Godart, [1824]) have spines at apex of the valva, but these are considerable more developed. Additionally to the type species *P. poltys*, Forster (1964) also included three more species in this genus: *P. difficilis*, *P. eous* and *P. phronius*. Comparing these species to each other, it is hard to find any evident morphological pattern in the male genitalia illustrations provided by Forster (1964: 107, figs 107-109), except those spines on the apex of the valva. Other structures of the male genitalia recognized by their valuable response in delimitating the genera of Euptychiina, such as the shape and length of the gnathos, uncus, valva and aedeagus seems to be overlooked by Forster, although they are evidently distinct on that four species placed in *Paryphthimoides* by the author. Based on this evidence, a new taxonomic rearrangement to *Paryphthimoides* it proposed herein.

Checklist of *Paryphthimoides*

Paryphthimoides Forster, 1964

Paryphthimoides poltys (Prittwitz, 1865)

Paryphthimoides poltys poltys (Prittwitz, 1865) **comb. n.**

Euptychia zeredatha Butler, 1869 **syn. n.**

Paryphthimoides bahneri Anken, 1994

Neonympha nerita Capronnier, 1881

Paryphthimoides poltys binalinea (Butler, 1867) **comb. n.**, **stat. n.**

Neonympha numilia C. Felder & R. Felder, 1867 **syn. n.**

Euptychia poltys bahiana Bryk, 1953 **syn. n.**

Paryphthimoides vestigiata (Butler, 1867)

Paryphthimoides brixius (Godart, [1824]) **comb. n.**

Paryphthimoides brixius brixius (Godart, [1824]) **comb. n.**

Paryphthimoides brixius brixiola (Butler, 1867a) **comb. n.**

Paryphthimoides terrestris (Butler, 1867) **comb. n.**

Paryphthimoides touloulou (Benmesbah, 2015) **comb. n.**

Paryphthimoides sp. 1 Zacca, Casagrande & Mielke **sp. n.**

Paryphthimoides sp. 2 Zacca, Casagrande & Mielke **sp. n.**

Paryphthimoides sp. 3 Zacca, Casagrande & Mielke **sp. n.**

Paryphthimoides sp. 4 Zacca, Casagrande & Mielke **sp. n.**

Paryphthimoides sp. 5 Zacca, Casagrande & Mielke **sp. n.**

Key to species of *Paryphthimoides*

1. VHW with yellowish ocellar ring in ocelli M_2-M_3 and M_3-CuA_1 … 2

- VHW with orange ocellar ring in ocelli M_2-M_3 and M_3-CuA_1 … 3

2. VW with submarginal line strongly crenulated; VFW with median and submarginal lines convergent between CuA_2 and the inner margin; VHW submarginal line straight …….. *P. poltys*

- VW with submarginal line slightly crenulated; VFW with median and submarginal lines parallels on its entire length; VHW submarginal line crenulated ……. *P. vestigiata*

3. DW ground colour greyish blue; VFW submarginal line straight ……. *P. brixius*

- DW ground colour brown; VFW submarginal line crenulated …. 4 ("*terrestris* group")

4. VHW with ocellus in M_3-CuA_1 rounded ……. 5

- VHW with ocellus in M_3-CuA_1 elliptical …….. 6

5. DW with faded ocellus in CuA_1-CuA_2, occupying about half the width of the cell; VW with submedian and median lines reddish in VW …….. *Paryphthimoides*. sp.1

- DW with well-marked ocellus in CuA_1-CuA_2, occupying all the width of the cell; VW with submedian and median lines chestnut brown in VW …… *Paryphthimoides* sp. 3

6. VW ground colour greyish/light brown ……... 7

- VW ground colour whitish …… 8

7. VHW with faded ocellus in M_3-CuA_1, occupying 1 ½ to 2/3 the width between the median and submarginal lines and distant to the submarginal line ……..... *Paryphthimoides* sp. 5

- VHW with well-marked ocellus in M_2-M_3 and M_3-CuA_1, very elongated ocellus in M_3-CuA_1, occupying almost the entire width between the median and submarginal lines and close to the submarginal line …… *P. terrestris*

8. VW greyish-white with submedian and median lines ochre; VHW with a narrow (approximately 0.3 mm) ocellar ring in M_3-CuA_1 and developed silvery pupil …… *Paryphthimoides* sp. 2

- VW whitish between the submarginal region and the outer margin, with submedian and median lines chestnut brown; VHW with a thick (approximately 1 mm) ocellar ring in M_3-CuA_1 and reduced silvery pupil…… *Paryphthimoides* sp. 4

Species accounts

***Paryphthimoides poltys* (Prittwitz, 1865)**

Diagnosis. This species can be confused with *Moneuptychia soter* (Butler, 1877) (see Brown 1992: 153, figs 8.5.18 and 8.5.19) and *Paryphthimoides eous* (treated in the Chapter 3), especially by morphological similarity and their sympatric occurrence in some localities in south Brazil. *Paryphthimoides poltys* differs from *M. soter* by having the submarginal and marginal converging lines in VFW, six developed ocelli in VHW and marginal line in VHW the same width on its entire length (wider at tornus in *M. soter*). *Paryphthimoides poltys* is distinguished from *P. eous* by the median and submarginal converging lines between 2A and the inner margin in VFW, two tiny ocelli between CuA_1–2A on DHW, and six ocelli between R_{4+5}–2A on VHW.

***Paryphthimoides poltys poltys* (Prittwitz, 1865)** (Figs 1-4, 41-47, 88-89, 100, 119-120)

Neonympha poltys Prittwitz, 1865: 311; syntypes: Brazil, [Rio de Janeiro], Rio de Janeiro, Corcovado. – Lamas, 2006: 121, fig. 1 (male); lectotype male designated: Brazil, [Rio de Janeiro], Rio de Janeiro, Corcovado; ZMHB (examined).

Euptychia zeredatha Butler, 1869: 9, pl. 4, fig. 3; syntypes: Brazil, Rio de Janeiro. Lectotype female here designated: Brazil, Rio de Janeiro; NHMUK (examined), **syn. n.** – Bryk, 1953: 61.

Neonympha nerita Capronnier, 1881: 102; syntypes: Brazil, Rio de Janeiro, Campos dos Goytacazes. – Lamas, 2006: 121, figs 2-3 (male); lectotype male designated: Brazil, Rio de Janeiro, Campos dos Goytacazes; RBINS (examined).

Euptychia eous f. *zeredatha*; Weymer, 1911: 208. – Gaede, 1931: 445.

Paryphthimoides poltys; Forster, 1964: 107, fig. 107 (male genitalia). – Lewis, 1973: 61, fig. 10 (male). – Brown, 1992: 152, figs 14-15 (male). – Motta, 2002: 158. – Cannals, 2003: 386 (female). – Krüger & Silva, 2003: 40. – Iserhard & Romanowski, 2004: 653. – Emery *et al.*, 2006: 90. – Machiori & Romanowski, 2006a: 447. – Machiori & Romanowski, 2006b: 1032. – Pinheiro & Emery, 2006: 12. – Brown *et al*., 2007 (appendix): 13. – Dessuy & Morais, 2007: 113. – Pinheiro & Emery, 2007: 72. – Silva *et al*., 2007: 140. – Beccaloni *et al.*, 2008: 340. – Giovenardi *et al.*, 2008: 603. – Núñez-Bustos, 2008: 82. – Paz *et al.*, 2008: 145. – Sackis & Morais, 2008: 155. – Teston, 2008: 48. – Betancur-Viglione, 2009: 35. – Bonfantti *et al.*, 2009: 824. – Núñez-Bustos, 2009: 75. – Núñez-Bustos, 2010: 122 (male, female). – Dolibaina *et al.*, 2011: 349. – Núñez-Bustos, 2011: 40. – Ritter *et al.*, 2011: 5. – Santos *et al.*, 2011: 272. – Bellaver *et al.*, 2012: 5. – Mielke *et al.*, [2012]: 301. – Silva *et al.*, 2012: 295. – Machiori *et al.*, 2013: 7. – Paz *et al.*, 2013: 4. – Silva *et al.*, 2013: 90. –

Garcia-Salik *et al.*, 2014: 279. – Paz *et al.*, 2014: 413. – Thiele *et al.*, 2014: 7. – Caporale *et al.*, 2015: 5. – Spaniol & Moraes, 2015: 39. – Graciotim & Moraes, 2016: 120.

Paryphthimoides bahneri Anken, 1994: 348, figs 1-2 (male: adult, genitalia); holotype: Brazil, Mato Grosso do Sul, Navirai, Barranco do Rio Amambai – RA. – Lamas, 2004: 221; **syn.** *P. zeredatha*.

Diagnosis. *Paryphthimoides p. poltys* is characterized by its small ocelli and thin submedian and median lines in both DHW and VHW.

Male genitalia (Figs 43-47). Tegumen convex, laterally subtriangular; uncus slightly sinuous, about 2/3 the length of the tegumen, dorsally ovoid, apex laterally curved downwards and truncated in dorsal view; gnathos laterally sinuous, 2/3 the length of the uncus, larger at base and tapering at apex, combination of the ventral arm of tegumen and the dorsal arm of saccus strongly sinuous; appendix angularis short, wider at base with apex curved downwards; anterior projection of saccus developed, cylindrical, and almost the same length as the gnathos; fultura superior absent; fultura inferior present; valva sub-rectangular covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa developed and sub-squared, dorsal margin slightly sinuous with a dorsal projection at apical third of the valva, ventral margin projected at median region, apex rounded and slightly serrated; aedeagus straight or slightly sinuous, the same length as the valva, cylindrical, anterior region bottle-shaped, posterior region about two times longer than the anterior region with apex truncated in dorsal view, distal opening ventral and longer than the proximal opening; two cornutal patches.

Female genitalia (Figs 88-89). 8^{th} tergite rectangular; papilla analis subtriangular covered by long hairy-like setae at distal region, apophysis posterior absent; lamellae antevaginalis and postvaginalis absent; ductus bursae membranous; corpus bursae about the same length as the ductus bursae, with ventrally paired signa.

Variation. Among the species of *Paryphthimoides*, *P. poltys poltys* is the most variable concerning its wing phenotype, mainly by the presence/absence of darker shade stains along the outer margin of the median and submedian lines in VW (also illustrated in Brown 1992: 153, figs 8.5.14 and 8.5.15). Apparently, the presence of these stains is not related to the seasonal polyphenism, neither the sexual dimorphism, and no studies has been done yet on this topic. In general, females are larger (FW length: 16-20 mm) than the males (FW length: 14-19 mm).

Distribution. This subspecies occurs in Midwest-South Brazil (Tocantins, Goiás, Distrito Federal, Mato Grosso, Mato Grosso do Sul, Minas Gerais, Paraná, Santa Catarina, São Paulo, Rio de Janeiro and Rio Grande do Sul), Paraguay (Alto Paraná and Assunción), Uruguay and north Argentina (Buenos Aires, Chaco, Corrientes, Entre Ríos, Jujuy, Missiones, Salta, Santa Fé, Tucumán) (Fig. 120), mainly associated with dry forests, primary and secondary growth vegetation, and riparian areas, where is common from sea level until 1200 m (Brown, 1992; Morais *et al.* 2007; Pinheiro *et al.* 2008; Teston & Corseuil 2008a, b; Nunez-Bustos, 2010; Santos *et al.* 2011; Silva *et al.* 2012; Paz *et al.* 2013; Spaniol & Morais 2015; Graciotim & Moraes 2016). This subspecies occurs sympatrically with some similar looking taxa, such as (1) *P. vestigiata* in Minas Gerais and São Paulo, Brazil; (2) *P.terrestris* **comb. n.** in Mato Grosso, Brazil and (3) *Paryphthimoides* sp. 5 **sp. n.** in Mato Grosso, Goiás, Minas Gerais, São Paulo and Paraná.

Biology and phenology. In general, *Paryphthimoides p. poltys* is an abundant and multivoltine species, flying during all year around and has been reported to be attracted to bait traps (Paz *et al.* 2014; Silva *et al.* 2013; Spaniol & Morais 2015).

Host plant and immature stages. Recorded larval host plant include species of *Eleusine* Gaertn. (Chloridoideae), *Cenchrus* L. (Panicoideae) and *Stenotaphrum* Trin. (Panicoideae) (Silva *et al.* 1968; Cannals 2003), and others undetermined species of Poaceae (Brown 1992). Immature stages unknown.

Type material, lectotypes designation and taxonomic history. *Neonympha poltys* Prittwitz, 1865 was described based on an unstated number of specimens from Corcovado, Rio de Janeiro, Rio de Janeiro, Brazil. Prittwitz (1865) did not provide any illustration of *N. poltys*, but its description agrees with a male specimen found at ZMHB from the same locality. This specimen was designated as the lectotype of *Neonympha poltys* by Lamas (2006).

Euptychia zeredatha Butler, 1869 was described based on an unstated number of females from Rio de Janeiro, Brazil, in O. Salvin's collection, at NHMUK. One syntype female was found at NHMUK, and is herein designated the lectotype of *Euptychia zeredatha* (Fig. 100) to fix the identity of the name; this specimen has the following labels: /Type H.T./ Type of species/ *E. zeredatha* type [handwritten]/ B.M. Type No. Rh 3208 *Euptychia zeredatha*, ♀ Butl./ ♀/ Rio de Janeiro, Brazil. J. Youds./ Godman-Salvin Coll. 1904. – 1. *Euptychia zeredatha* Butl./ BMNH(E) 1267069/; and two others will be added later: /Lectotypus/ Lectotypus *Euptychia zeredatha* Butler, 1869. T. Zacca, det. 2016/. NHMUK. The last two labels will be sent to the curator.

In the same work, Butler (1869) also mentioned that this species could be a subspecies of *Euptychia eous*, a species described by himself two years before (Butler, 1867). Notwithstanding, the illustration of *E. zeredatha* (Butler, 1869: fig. 3) does not totally agree with its description, being most similar to one of the male syntypes of *E. eous* (BMNH(E) 1267063) found at NHMUK. Considering that both syntypes males of *E. eous* and the female of *E. zeredatha* are from the same locality, Rio de Janeiro, Brazil, it is very likely the specimens were switched and *E. zeredatha* was wrongly illustrated.

Neonympha nerita Capronnier, 1881 was described based on two specimens collected by Thobie at São Salvador dos Campos, currently known as Campos dos Goytacazes, Rio de Janeiro, Brazil. The lectotype of *N. nerita* was designated in Lamas (2006), and it is deposited at RBINS. Lamas (2006) correctly treated this species as a synonym of *Paryphthimoides poltys.*

Remarks. Although treated as distinct species for a long time, *P. zeredatha* and *Neonympha nerita* share the same genitalia morphology than *P. poltys*, but the marked phenotypical variation on the wings elements of this species (mainly the darker shade stains in VW) can brings some difficult on its identification. Molecular phylogeny evidence (M. Espeland and collaborators, *in prep.*) also corroborates the synonymies of *P. zeredatha* and *N. nerita* with *P. poltys*.

Examined material. 131 males, 92 females (18 specimens dissected). BRAZIL, *no specific locality*: 1 female, Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1422181 (NHMUK); *Mato Grosso*: no specific locality, 1 female, 1886, P. Germain *leg*., Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1422212 (NHMUK), Barra do Bugres, 150 m, 1 male, 26-29.VII.1974, H. & H. D. Ebert *leg*., DZ 29.205 (DZUP), 31-35 km NW, 200 m, 1 male, 29.VI.1972, Mielke & Brown *leg*., DZ 29.286 (DZUP), Alto Rio Paraguai, 150 m, 1 female, 15.V.1974, E. Furtado *leg*., DZ 29.203 (DZUP), 1 female, 26-29.VII.1974, DZ 29.204 (DZUP), Chapada dos Guimarães, Buriti, 1 male, I.[no year], H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1422274 (NHMUK), 600 m, 1 male, 1 female, 26.VI.1972, Mielke & Brown *leg*., DZ 29.287*, DZ 29.267 (DZUP), 700 m, 1 male, 11.VI.1975, ex-coll. H. Ebert, DZ 29.220 (DZUP), 1 male, 25.I.1978, DZ 25.649 (DZUP), 1 female, 10.V.1978, DZ 29.221 (DZUP), Cárceres, 1 male, 1 female, 13.XI.1984, Buzzi, Mielke, Elias & Casagrande *leg*., DZ 29.242*, DZ 29.241 (DZUP), Coronel Rio Branco, Rio Vermelho, 400 m, 1 female, 30.VI.1972, Mielke & Brown *leg*., DZ 29.288 (DZUP), 1 male, 3.VII.1972, DZ 29.290 (DZUP), Diamantino, Alto Rio Arinos, Fazenda São João, 300–400 m, 3 males, 2 females, 1-8.VIII.1974, DZ 29.206, DZ 29.209, DZ 29.211, DZ 29.212, DZ 29.213 (DZUP); *Mato Grosso do Sul:* Corumbá, Base de Estudos do Pantanal, 19°34’36”S 57°1’6”W, 2 males, 8-10.IX.2012, no collector, MGCL-LOAN-026, 027 (ZUEC), Salobra, 4 males, 1 female, 24.VIII–6.IX.1940

(IOC); *Tocantins*: Ilha do Bananal, 1 male, 16.VI.1979, Gifford *leg*., DZ 29.249* (DZUP), 1 female, 17.VI.1970, DZ 29.257* (DZUP), 1 female, 21.VI.1979, DZ 29.237 (DZUP), 1 male, 24.VI.1979, DZ 29.259 (DZUP); *Goiás*: Iporá, 22 km W, 420 m, 1 male, 21.VI.1972, Mielke & Brown *leg*., DZ 29.277 (DZUP); *Minas Gerais:* no specific locality, 1 male, no data, Ex Grose Smith, 1910, BMNH(E) 1422336 (NHMUK), 1 male, 12.V.1969, ex-coll. H. Ebert, DZ 29.109 (DZUP), Aimorés, 1 male, 1 female, 4.IX.1970, C. Elias *leg*., DZ 29.273, DZ 29.268 (DZUP), Cambuquira, 900 m, 1 male, 15.IX.1969, Ebert *leg*., DZ 29.150 (DZUP), 1 male, 7.XI.1969, DZ 29.137 (DZUP), Curvelo, Cabeceira do Córrego Leitão, 700 m, 3 females, 15.VI.1972, Mielke & Brown *leg*., DZ 29.285, DZ 29.195, DZ 29.262 (DZUP), 1 female, 18.VII.1972, DZ 29.219* (DZUP), Fervedouro, 1 female, 5.XI.1972, DZ 29.181 (DZUP), Juiz de Fora, Rio Paraibuna, 500-800 m, 1 female, 3.VIII.1964, H. Ebert *leg*., DZ 29.184 (DZUP), Marliéria, Parque Estadual do Rio Doce, 200 m, 2 males, 2 females, 27.VII.1972, H. Ebert *leg*., DZ 29.193, DZ 29.197, DZ 29.200, DZ 29.305 (DZUP), 1 male, 9.IX.1972, DZ 29.192 (DZUP), 1 male, 6.IX.1972, 29.234 (DZUP), Muriaé, Fazenda Barra Alegre, 200 m, 2 males, 29.VII.1972, H. Ebert *leg*., DZ 29.231, DZ 29.233 (DZUP), Paracatu, 1 male, 13.I.1968, ex-coll. H. Ebert, DZ 29.107 (DZUP), 1 female, 14.I.1968, DZ 29.108 (DZUP), 1 female, 15.I.1968, DZ 29.307 (DZUP), 1 male, 10.V.1968, DZ 29.097 (DZUP), 1 male, 7.VII.1968, DZ 29.179 (DZUP), 1 female, 13.IX.1968, DZ 29.095 (DZUP), 1 male, 15.V.1969, DZ 29.099 (DZUP), 2 males, 16.V.1969, DZ 29.143, DZ 29.111 (DZUP), 3 males, 1 female, 17.V.1969, DZ 29.06, DZ 29.091, DZ 29.110, DZ 29.215 (DZUP), 3 males, 4 females, 18.V.1969, DZ 29.154, DZ 29.158, DZ 29.159, DZ 29.164, DZ 29.140, DZ 29.138, DZ 29.139 (DZUP), 1 male, 3 females, 9.IX.1969, DZ 29.098, DZ 29.169, DZ 29.153, DZ 5.4.22* (DZUP), 1 male, 15.IX.1969, DZ 29.100 (DZUP), 3 males, 16.VI.1972, Mielke & Brown *leg*., DZ 29.196, DZ 29.282*, DZ 29.297 (DZUP), Paraopeba, 750 m, 1 female, 11.X.1961, ex-coll. H. Ebert, DZ 29.157 (DZUP), 1 female, 11.IX.1969, DZ 29.180 (DZUP), 1 male, 23.VII.1972, H. & H. Ebert *leg*., DZ 29.232 (DZUP), Sete Lagoas, 1 female, 20.III.1968, V. O. Becker *leg*., DZ 29.292 (DZUP), Teófilo Otoni, 12 km S, 600 m, 1 male, 11.II.1967, Mielke & Casagrande *leg*., DZ 32.751 (DZUP), Unaí, 3 km W, 1 male, 26.I.1980, ex-coll. Gifford, DZ 29.260 (DZUP). *Rio de Janeiro*: no specific locality, 1 male, no data, Druce Coll. Ex, Godman-Salvin Coll. 1904-1, BMNH(E) 1422430 (NHMUK), Duque de Caxias, Imbariê, 1 male, 5.I.1950, ex-coll. H. Ebert, DZ 29.145 (DZUP), 1 male, 5.V.1950, DZ 29.121 (DZUP), 1 male, 28.V.1951, DZ 29.118 (DZUP), 1 male, 1.XI.1953, DZ 29.178 (DZUP), 1 female, 15.V.1955, DZ 29.132 (DZUP), 1 male, 17.V.1956, DZ 29.147 (DZUP), 1 male, 24.VI.1956, DZ 29.129 (DZUP), 1 male, 14.X.1956, DZ 29.101 (DZUP), 1 male, 13.V.1958, DZ 29.106 (DZUP), 1 male, 15.VII.1964, DZ 29.127 (DZUP), 1 female, 21.VII.,1964, DZ 29.152 (DZUP), 1 female, 29.VII.1964, DZ 29.183 (DZUP), 1 male, 31.VII.1964, DZ 29.172 (DZUP), 1 male, 14.IX.1965, DZ 29.120 (DZUP), 2 males, VII.1966, Ebert *leg*., DZ 29.155*, DZ 29.168 (DZUP), 1 male, 1 female, 16.VIII.1969, ex-coll. H. Ebert, DZ 29.171, DZ 29.149 (DZUP), 1 male, 1 female,

2.IX.1970, DZ 29.188, DZ 29.189 (DZUP), 1 male, 18.VI.1979, DZ 29.222 (DZUP), 1 female, 24.VI.1979, DZ 29.224 (DZUP), Niterói, São Francisco, 20-150 m, 1 male, 15.XI.1950, H. Ebert *leg*., DZ 29.102 (DZUP), 1 male, 1 female, 1.III.1952, DZ 29.105, DZ 29.156 (DZUP), Nova Iguaçu, 1 male, 20.II.1926, ex-coll. D'Almeida, DZ 29.306 (DZUP), Petrópolis, Independência, 900 m, 1 female, 19.VI.1936, Gagarin *leg*., DZ 29.218 (DZUP), 1 male, 19.X.1960, Gagarin *leg*., DZ 29.245* (DZUP), Rio de Janeiro, Encantado, 1 female, 4.IX.1940, H. Ebert *leg*., DZ 29.185 (DZUP), Grajaú, 1 male, 16.I.1968, Mielke *leg*., DZ 29.255 (DZUP), Jacarepaguá, 1 male, 16.X.1932, ex-coll. D'Almeida, DZ 29.112 (DZUP), 1 male, 17.VI.1956, H. Ebert *leg*., DZ 32.792 (DZUP), 1 male, 19.II.1958, ex-coll. D'Almeida, 29.187 (DZUP), Urca, 1 male, 10.III.1951, H. Ebert *leg*., DZ 29.122 (DZUP), 2 males, 17.III.1951, DZ 29.103, DZ 29.123 (DZUP), 3 males, 31.III.1951, DZ 29.128, DZ 29.134, DZ 29.104 (DZUP), 1 female, 9.IV.1951, DZ 29.161 (DZUP), 1 male, 17.VII.1951, DZ 29.113 (DZUP), 1 male, 1 female, 5.VII.1952, DZ 29.126, DZ 29.162 (DZUP), no specific locality, 1 male, 14.V.1974, ex-coll. H. Ebert, DZ 32.802 (DZUP), Tijuca, Restinga, 1 male, 11.V.1957, H. Ebert *leg.*, DZ 29.125 (DZUP), Santa Teresa, 100 m, 1 female, 11.IV.1952, H. Ebert *leg*., DZ 29.092 (DZUP), 1 female, 26.IV.1952, DZ 29.115 (DZUP), São Gonçalo, Lagoinha, 250 m, 1 male, 19.IV.1951, H. Ebert *leg*., DZ 29.167 (DZUP), 1 male, 17.II.1952, DZ 29.130 (DZUP), 1 male, 10.VII.1954, DZ 29.135 (DZUP); *São Paulo*: Brotas, Campo Alegre, 750 m, 1 male, 1 female, 1.V.1966, Ebert *leg*., DZ 29.163, DZ 29.133 (DZUP), Getulina, 1 female, 12.XI.1975, Mielke & Rosado *leg*., DZ 29.291 (DZUP), Mirassol, 1 male, I.1968, ex-coll. H. Ebert, DZ 29.136 (DZUP), 1 female, 1.XI.1972, Ebert *leg*., DZ 29.191 (DZUP), Pereira Barreto, Alto Rio Paraná, Fazenda Nova Estrela, 300 m, 2 males, 1.V.1973, H. Ebert *leg*., DZ 29.235, DZ 29.236 (DZUP), 1 female, 10.XI.1975, Mielke & Rosado *leg*., DZ 29.275 (DZUP), Rio Claro, 600 m, 1 male, 16.VI.1953, Ebert *leg*., DZ 29.151 (DZUP), 1 female, 28.IV.1962, DZ 29.146 (DZUP), 1 male, 31.V.1962, DZ 29.166 (DZUP), 1 male, 26.VIII.1962, DZ 29.175 (DZUP), 1 male, 30.IX.1962, DZ 29.148 (DZUP), 1 male, 2 females, 5.IV.1964, Ebert *leg*., DZ 29.089, DZ 29.117, DZ 29.165 (DZUP), 1 female, 6.IV.1964, DZ 5.423* (DZUP), 1 male, 24.VI.1964, DZ 29.114 (DZUP), 1 female, 16.V.1965, DZ 29.170 (DZUP), 1 male, 2.IV.1966, DZ 29.093 (DZUP), 1 male, 17.XI.1969, DZ 29.094 (DZUP), 1 male, 1 female, 21.XI.1969, DZ 29.090, DZ 29.160 (DZUP), 1 male, 1 female, 27.IV.1971, Mielke *leg*., DZ 29.251, DZ 29.250* (DZUP), 1 male, 1.V.1975, DZ 29.223 (DZUP), Teodoro Sampaio, Parque Estadual Morro do Diabo, 1 male, 2 females, 17-19.VIII.1989, Mielke & Casagrande *leg*., DZ 29.299, DZ 29.300, DZ 29.298 (DZUP), 250-500m, 1 male, 20-23.II.1990, DZ 29.301 (DZUP); *Paraná*: Alto Paraíso, Parque Nacional Ilha Grande, 23°23'57"S 53°49'06"W, 1 male, 4.X.2012, LABLEP, DZ 31.196 (DZUP), Campo Mourão, Parque Estadual Lago Azul, 500-600 m, 3 females, 9-11.X.2010, Mielke, Dolibaina, Carneiro & Maia *leg*., DZ 32.801, DZ 31.160, DZ 31.190 (DZUP), Diamante do Norte, Estação Ecológica do Caiuá, 22°36'24"S 52°52'14"W, 1 female, 16.V.2009, D. Dolibaina & E. Carneiro *leg*., DZ 32.761 (DZUP), 1 male, 18.III.2011,

Dolibaina & Salik *leg*., DZ 31.157 (DZUP), 1 female, 21.V.2011, DZ 31.169 (DZUP), 1 male, 22.IV.2011, DZ 31.167 (DZUP), 2 males, 24.VI.2011, DZ 31.149, DZ 31.180 (DZUP), Foz do Iguaçu, 250 m, 4 males, 2 females, 17.II.1969, Moure & Mielke *leg*., DZ 29.261, DZ 29.264, DZ 29.263, DZ 29.265, DZ 29.281, DZ 29.270 (DZUP), 3 males, 6.IX.1985, Mielke & Casagrande *leg*., DZ 29.247, DZ 29.248, DZ 29.243* (DZUP), Guaira, Parque Nacional Sete Quedas, 2 males, 14-16.II.1978, Mielke & Miers *leg*., DZ 29.296, DZ 29.194 (DZUP), Jaguairaiva, Parque Estadual do Cerrado, 800 m, 1 female, 22.XI.2009, Mielke, Carneiro, Maia, Ribeiro, Dolibaina *leg*., DZ 32.821 (DZUP), Loanda, RPPN Fazenda Matão, 1 female, 19-21.IV.2008, D. Dolibaina *leg*., DZ 32.781 (DZUP), 400 m, 1 female, 11.X.2009, Carneiro, Leite, Dias & Dolibaina *leg*., DZ 32.771 (DZUP), Londrina, 2 females, 10.IX.1985, Mielke & Casagrande *leg*., DZ 29.238, DZ 29.239 (DZUP), Instituto Agronômico do Paraná, 600 m, 2 females, 8.XII.1975, Moure, Mielke & Weddernoff *leg*., DZ 29.274, DZ 29.174 (DZUP), Manoel Ribas, Rio Ivaí, 450-600 m, 1 male, 12.X.2010, Mielke, Dolibaina, Carneiro & Maia *leg*., DZ 32.791 (DZUP), Matelândia, Parque Nacional Iguaçu, 300 m, 2 males, 1 female, 21-14.IV.1995, Mielke & Casagrande *leg*., DZ 31.159, DZ 31.209, DZ 31.199 (DZUP), 1 male, 25.VIII.1998, Mielke *leg*., DZ 31.170 (DZUP), Planaltina do Paraná, RPPN Duas Barras, 23°11'41"S 53°00'20"W, 2 females, 13.V.2009, D. Dolibaina & E. Carneiro *leg*., DZ 31.177, DZ 31.179 (DZUP), Roncador, 15 km SW, 550-600 m, 1 female, 11.X.2010, Mielke, Dolibaina, Carneiro & Maia *leg*., DZ 31.189 (DZUP), São Pedro do Ivaí, RPPN Barbacena, 300 m, 1 male, 8.X.2010, Mielke, Dolibaina, Carneiro & Maia *leg*., DZ 32.811 (DZUP), 1 female, 2.X.2012, LABLEP, DZ 31.206 (DZUP); *Santa Catarina*: Seara, Nova Teutônia, 27°11'S 52°23'W, 300-500 m, 1 female, XII.1931, Fritz Plaumman *leg*., DZ 29.256, DZ 29.295* (DZUP), 350 m, 1 male, 11.II.1973, Ebert *leg*., DZ 29.198* (DZUP); *Rio Grande do Sul*: Canguçu, Rincão da Ronda, 31°5'47.22"S 52°52'11.01"W, 250 m, 1 female, 17.IV.2012, E. Carneiro, F. Dias, F. L. Santos & T. Zacca *leg*., DZ 37.941 (DZUP), Passo Fundo, 640 m, 1 male, 8.II.1976, Mielke & Buzzi *leg*., DZ 29.226* (DZUP), Pelotas, 1 male, 4.III.1964, ex-coll. H. Ebert, DZ 29.190* (DZUP); Tapes, 1 female, 16.X.1971, Moure & Mielke *leg*., DZ 29.269 (DZUP). PARAGUAY – *Alto Paraná*: Itakyry, General Dias, 400 m, 1 female, 15-20.I.1980, C. Mielke & Miers *leg*., DZ 29.253* (DZUP); *Asunción*: Botanical Garden, 1 male, VIII.1967, ex-coll. H. Ebert, DZ 33.122* (DZUP). ARGENTINA – *Corrientes*: São Tomé, 1 female, I.1924, ex-coll. D'Alemeida, DZ 29.186 (DZUP); *Misiones*: Almirante Brown Gal. Belgrano, 1 male, 2-5.III.2007, Mielke & Casagrande *leg*., DZ 31.150 (DZUP); *Tucumán*: no specific locality, 2 females, no data, Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH (E) 1422150, BMNH(E) 1422027 (NHMUK).

Paryphthimoides poltys binalinea **(Butler, 1867) comb. n., stat. n.** (Figs 5-8, 101, 119-120)

Euptychia binalinea Butler, 1867: 475-476, pl. 39, fig. 14; syntypes: Venezuela and Pernambuco, Brazil. – Lamas, 2006: 122, fig. 4 (female); lectotype female designated: Venezuela; NHMUK (examined).

Euptychia poltys bahiana Bryk, 1953: 52; holotype: Brazil, Bahia; NRS.

Neonympha numilia C. Felder & R. Felder, 1867: 478; syntypes: [Colombia, Boyacá] Muzo. Lectorype male here designated: [Colombia, Boyacá] Muzo; NHMUK (examined); **syn. n.**

Paryphthimoides poltys; Peña *et al.*, 2010: 248. – Paluch *et al.*, 2011: 235. – Nakahara *et al.*, 2016: 4. – Paluch *et al*., 2016: 4.

Diagnosis. Differs from the nominate subspecies in having larger ocelli in both DHW and VHW. The submedian and median lines are also slightly wider in *P. poltys binalinea*.

Variation. In general, males and females have the same size (FW length – males: 15-19 mm; females: 17-19 mm). Some individuals from Colombia (DZ 34.150, DZ 34.550) have faded ocelli between CuA_1-2A on DHW, and the submarginal line is straighter between CuA_1 and the inner margin on VFW. The silvery pupils of the ocellus in CuA_1-CuA_2 on DHW can be fused (giving an impression that there is only one pupil on it).

Distribution. This subspecies occurs in forested areas in Peru (Madre de Díos), Colombia (Caldas), Venezuela (Bolívar and Carabobo), and northern Brazil (Acre, Amazonas, Rondônia, Pará, Maranhão, Ceará, Pernambuco, Paraíba, Alagoas, Bahia and Espírito Santo) from sea level to 900 m (Fig. 120). *Paryphthimoides poltys binalinea* occurs sympatrically with *P. terrestris* in Bolivar and Córdova (Venezuela), Acre, Amazonas, Pará, Pernambuco and Bahia (Brazil).

Biology and phenology. *Paryphthimoides poltys binalinea* is multivoltine and flies during all year around. It seems less abundant than *P. poltys poltys*.

Type material, lectotypes designation and taxonomic history. *Euptychia binalinea* Butler, 1867 was described based on an unstated number of specimens from Venezuela, and Pernambuco, Brazil. One syntype female from Venezuela was found at NHMUK (Fig. 101), and this specimen was designated as the lectotype of *Euptychia binalinea* by Lamas (2006). The other syntype(s) from Pernambuco were not located at NHMUK.

Euptychia poltys bahiana Bryk, 1953 was described based on the male holotype, female allotype and two male paratypes. These types are currently deposited at NRS.

Neonympha numilia C. Felder & R. Felder, 1867 was described based on an unstated number of specimens from Muzo, Boyacá, Colombia, collected by Dr. Uricoechea. Only one syntype male from the type locality was found at NHMUK (Fig.

101), and it is designated herein as the lectotype of *Neonympha numilia* to fix the identity of the name; this specimens has the following labels: /Type/ Muzo Uricoechea type/ *Euptychia numilia*/ FELDER COLLN./ Rothschild Bequest B. M. 1939-1/ Type of *N. numilia* Feld[er]. = *E. binalinea* Butl[er]. *E. binalinea* Butl. has 2nd transv. line on h[ind] w[ing]. more wavy and the yellow iris is narrower [handwritten]/; and two others labels will be added later: /Lectotypus/ Lectotypus *Neonympha numilia* C. Felder & R. Felder, 1867. T. Zacca, det. 2016/. NHMUK. The last two labels will be sent to the curator later.

Remarks. After examining a large series of specimens, it was concluded that *N. numilia* morphologically agrees with *P. poltys binalinea*, being proposed as a junior synonym.

Examined material. 44 males, 20 females (9 specimens dissected). VENEZUELA – *Bolivar*: 1 female, 26.X.1898, S. Klages *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1422330 (NHMUK); *Carabobo*: Puerto Cabelo, San Esteban, VII.1909, S. M. Klages *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1422298 (NHMUK). COLOMBIA, *Caldas*: Victoria Cuba, 1 male, 25.V.2012, F. Gaviria *leg*., DZ 34.150 (DZUP), Vereda Bellavista, 1 male, 22.VI.2012, Gaviria, F. *leg*., DZ 34.550 (DZUP). PERU, *Madre de Dios*: Pakitza, Parque Manu, 340 m, 11°55'48"S 11°15'18"W, 1 male, 14.X.1991, I. Banhorquez M, *leg*., DZ 29.302* (DZUP), 1 male, 27.IX.1991, G. Lamas *leg*., DZ 29.293* (DZUP), 1 female, 2.X.1991, R. Robbins *leg*., DZ 29.278 (DZUP). BRAZIL, *Acre*: Cruzeiro do Sul, 200 m, 1 male, 9.V.1972, H. Ebert *leg*., DZ 29.208 (DZUP), 1 male, 20-30.I.1973, DZ 29.202 (DZUP), 1 male, 8.VII.1975, DZ 29.225 (DZUP), Mâncio Lima, Parque Nacional Serra do Divisor (sede), 7°24'46"S 73.12'45"W, 1 male, 27.VI.2013, Mielke, Casagrande, Carneiro, Dias & Dolibaina *leg*., DZ 31.148 (DZUP), Moa river, 2 females, 23-30.VIII.2014, Mielke, Casagrande, Carneiro, Dias, Dolibaina, Siewert & Salik *leg*., DZ 31.158, DZ 31.168, DZ 31.178 (DZUP), Manoel Urbano, 37°40'52"S 89°11'97"W, 1 male, 21.II.2008, Antonelli *leg*., DZ 29.303* (DZUP); *Amazonas*: Manaus, Reserva Ducke, 2°53'S 59°57'W, 1 male, 10-13.VIII.2010, Dias & Bonfantti *leg*., DZ 31.188 (DZUP); *Rondônia*: Vilhena, 1 female, 20.VI.1974, Gifford *leg*., DZ 29.240 (DZUP); *Pará*: Tapajós river, 1 male, 10.VII.1978, Gifford *leg*., DZ 29.246* (DZUP); *Maranhão*: Feira Nova do Maranhão, Fazenda Forquilha dos Brejos, 26 km L, 1 female, 13-16.IV.2011, Mielke & Casagrande *leg*., DZ 31.198 (DZUP); *Ceará:* Aracoiaba, 1 female, 5.I.2010, A. Leite *leg.*, DZ 31.208 (DZUP), Guapimiranga, 900 m, 4°15'31"S 38°56'16"W, 1 male, 7-11.I.2012, Dolibaina & Leite *leg.*, DD 246 (DD), Maranguape, Serra da Aratanha, 700 m, 3 males, 4.I.2013, Dolibaina & Lima leg., DD 231, DD 237, DD 249 (DD), Padre Linhares, Massapê, 1 male, 27.V.2013, Dolibaina & Pessoa *leg*., DD 240 (DD), Ubajara, Parque Nacional Ubajara, 1 female, 22-24.IV.2012, Mielke & Casagrande *leg*., DZ 31.207 (DZUP), Viçosa do Ceará, Fonte Itacaranha, 800 m, 1 female, 28.V.2013, Dolibaina & Pessoa *leg*., DD 244 (DD), 2,5 km W, 750 m, 1 male, DD 241 (DD); *Paraíba*: Areia, 500 m, 1 male, 23.II.1969, Ebert *leg*., DZ 29.201 (DZUP), 1 male,

1.III.1969, DZ 29.182 (DZUP); *Pernambuco*: Brejões, 750 m, 2 males, 19.III.1969, Ebert *leg*., DZ 29.176, DZ 29.177 (DZUP), Camaragibe, 1 female, 7.VIII.1958, Ebert *leg*., DZ 29.131* (DZUP), Recife, 1 male, 3.V.1959, Ebert *leg*., DZ 29.199 (DZUP), São Lourenço da Mata, Tiuma, 100 m, 1 male, 30.I.1958, H. Ebert *leg*., DZ 29.230 (DZUP), 2 males, 9.VIII.1958, DZ 29.116, DZ 29.119 (DZUP), 1 male, 29.X.1958, DZ 29.124* (DZUP); *Alagoas*: Maceió, 1 female, 24.VI.1943, A. Cardoso *leg*., DZ 34.556 (DZUP), 1 female, 15.V.1949, DZ 31.187 (DZUP), 1 male, 13.IV.1968, DZ 33.898 (DZUP), 1 male, 27.V.1973, A. Cardoso *leg*., DZ 31.197 (DZUP), 1 male, 14.VIII.1973, Mielke *leg*., DZ 29.252 (DZUP); *Bahia*: 1 male, 1 female, 18.XII.1905, Maede-Waldo 1906-162, BMNH(E) 1420455, BMNH(E) 1422268 (NHMUK), 1 male, 19.XII.1905, Maede-Waldo 1906-162, BMNH(E) 1422329 (NHMUK), 1 female, 20.XII.1905, Maede-Waldo 1906-162, BMNH(E) 1422299 (NHMUK), Campo Formoso, 500 m, 1 male, 20.VII.1973, Mielke *leg*., DZ 29.283 (DZUP), Itabuna, 1 male, 10.IV.1979, Row *leg*., DZ 29.258 (DZUP), Jitauna, Rio de Contas, 150 m, 2 males, 26.III.1969, Ebert *leg*., DZ 29.227, DZ 29.229 (DZUP), Lajedão, 250 m, 1 male and 1 female, 21.VII.1967, Ebert *leg*., DZ 29.294, DZ 29.304* (DZUP), Senhor do Bonfim, Serra Santana, 1 male, 1 female, 24.IX.2009, T. Zacca *leg*., DZ 37.948, DZ 37.949 (DZUP); *Espírito Santo*: Baixo Gandu, 1 female, 11.III.1970, C. & C. T. Elias *leg*., DZ 29.280 (DZUP), 1 male, 28.III.1970, DZ 29.272 (DZUP), Linhares, 1 male, IV.1998, C. Elias *leg*., DZ 29.254 (DZUP), Sooretama, Reserva Florestal da Companhia do Vale do Rio Doce, 25-50m, 2 females, 17-26.II.1975, H. & H. D. Ebert *leg*., DZ 29.207, DZ 29.217 (DZUP), São João de Petrópolis, 1 female, 25.VII.1966, Mielke & Brown *leg*., DZ 29.279* (DZUP), Santa Leopoldina, 5 males, 26.VII.1966, Mielke, Brown & Elias *leg*., DZ 29.266, DZ 29.271, DZ 29.276, DZ 29.284*, DZ 29.289 (DZUP), no specific locality, 1 male, no data, Hewitson Coll. 79-69, BMNH(E) 1422305 (NHMUK).

***Paryphthimoides vestigiata* (Butler, 1867)** (Figs 9-12, 48-52, 90-91, 102, 119, 121)

Euptychia vestigiata Butler, 1867a: 470, **nom. nud.**

Euptychia vestigiata Butler, 1867b: 105-106, pl. 12, fig. 17; syntypes: [Brazil] Minas Gerais. Lectotype male here designated: Brazil, Minas Gerais; NHMUK (examined). – Ebert, 1969: 48.

Paryphthimoides vestigiata; Brown, 1992: 152, figs 11-13 (male, female). – Motta, 2002: 158. – Barlow *et al*., 2007: 1004 (appendix S1). – Barlow *et al*., 2008: 1102.

Diagnosis. *Paryphthimoides vestigiata* is distinguished from *P. poltys* by its larger size (FW length – male: 20-21 mm; female: 20-22 mm), darker ground colour in both DW and VW, and larger ocelli on VHW. The median and submarginal lines of *P. vestigiata* are parallels on VFW, and not converging between 2A and the outer margin. The

submedian and median lines on VHW are straight in *P. vestigiata*, being irregular in *P. poltys*.

Male genitalia (Figs 48-52). Tegumen convex, laterally subtriangular; uncus slightly sinuous, about 2/3 the length of the tegumen, dorsally ovoid, apex laterally curved downwards and truncated in dorsal view; gnathos laterally sinuous, 2/3 the length of the uncus, larger at base and tapering at apex, combination of the ventral arm of tegumen and the dorsal arm of saccus slightly sinuous; appendix angularis short, wider at base with apex curved downwards; anterior projection of saccus developed, cylindrical, and almost the same length as the gnathos; fultura superior absent; fultura inferior present; valva sub-rectangular covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa developed and sub-squared, dorsal margin slightly sinuous with a dorsal projection at apical third of valva, ventral margin slightly projected at median region, apex pointed and slightly serrated; aedeagus straight, smaller than the valva, cylindrical, anterior region digitiform, posterior region about 1 ½ the length of the anterior region with apex truncated in dorsal view, distal opening ventral and longer than the proximal opening; two cornutal patches.

Female genitalia (Figs 90-91). 8th tergite rectangular; papilla analis subtriangular covered by long hairy-like setae at distal region, with a developed dorsal projection, apophysis posterior reduced; lamellae antevaginalis reduced; lamellae postvaginalis absent; ductus bursae membranous; corpus bursae smaller than the ductus bursae, with dorsally paired signa.

Variation. Some individuals have a darker shadow patch between the median and submarginal lines on VW (see Brown 1992: 153, fig. 8.5.12). This kind of variation is also found in *P. poltys* and *Moneuptychia soter*.

Distribution. This species is found almost exclusively in the Brazilian Savanna (Minas Gerais and São Paulo) in altitudes below to 1400 m (Ebert 1969; Brown 1992), but there is a record (probably wrong) from the Amazonian region, between Monte Dourado, Pará and Laranjal do Jari, Amapá (Barlow *et al.* 2007, 2008) (Fig. 121). This species occurs sympatrically with the phenotypically similar species, *Paryphthimoides p. poltys* and *Paryphthimoides* sp. 5 **sp. n** in Minas Gerais and São Paulo, Brazil.

Biology and phenology. *Paryphthimoides vestigiata* is found in both primary and secondary forests, riparian areas and *Eucalyptus* plantation (Brown 1992; Brown & Freitas 2000; Motta 2002; Barlow *et al*. 2007, 2008), being considered rare in Poços de Caldas and surrounded areas in Minas Gerais (Ebert, 1969). In spite of Motta (2002)

performed a butterflies inventory using both net and bait traps, it was not specified the sampling method that *P. vestigiata* was captured. However, Barlow *et al.* (2007: Appendix S1) cite the attraction of this species by bait traps. Based on examined specimens, this species is multivoltine and flies during all year around.

Host plant and immature stages. Unknown.

Type material, lectotypes designation and taxonomic history. *Euptychia vestigiata* Butler, 1867 was described based on an unstated number of specimens from Minas Gerais, Brazil. Only one syntype male was found at NHMUK (Fig. 102). This specimen is designated herein as the lectotype of *Euptychia vestigiata* to fixed the identity of the name; this specimen has the following labels: /Type/ Minas Geraes [Brazil], Hewitson Coll. 79-69 *Euptychia vestigiata* Butl[er]. 3. type [handwritten]/ ♂/ B. M. Type No. Rh 3209 *Euptychia vestigiata* ♂ Butl[er]/ BMNH(E) 1267068/; and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia vestigiata* Butler, 1867. T. Zacca, det. 2016/. NHMUK. The last two labels will be sent to the curator later.

Examined material. 11 males and 12 females (4 specimens dissected). BRAZIL – *Minas Gerais*: Belo Horizonte, 100 m, 1 male, 12.V.1967, Ebert *leg*., DZ 28.405 (DZUP), Paraopeba, 750 m, 1 male, 18.II.1968, ex-coll. H. Ebert, DZ 28.409 (DZUP), 3 males, 2 females, 11.IV.1969, ex-coll. H. Ebert, DZ 28.411, DZ 28.415, DZ 28.416, DZ 28.417, DZ 28.423 (DZUP), 1 male, 18.V.1969, ex-coll. H. Ebert, DZ 28.421 (DZUP), 2 males, 11.IX.1969, H. Ebert *leg*., DZ 28.406, DZ 28.422* (DZUP), 1 male, 23.VII.1972, DZ 28.414 (DZUP), Poços de Caldas, 100 m, 6 females, 13.XII.1966, Ebert *leg*., DZ 28.407, DZ 28.408, DZ 28.419, DZ 5.427*, DZ 28.410, DZ 28.418* (DZUP), 2 females, 22.IV.1967, ex-coll. H. Ebert, DZ 28.412, DZ 28.420 (DZUP), 2 females, 17.III.1972, DZ 28.403, DZ 28.404 (DZUP), Sabará, 2 males, 15.IV.1981, Elias *leg*., DZ 28.413, DZ 5.476* (DZUP).

***Paryphthimoides brixius* (Godart, [1824]) comb. n.**

Diagnosis. *Paryphthimoides brixius* is the most distinct species in the genus by its greyish-blue coloration, as well as the androconial scales in the last abdominal segment of males. However, morphology of genitalia (see below) and phylogeny inferred from DNA (M. Espeland, K. Willmott *et al*., *in prep.*; E. P. Barbosa & A. V. L. Freitas, *in prep.*) support its inclusion in *Paryphthimoides.*

Remarks. Butler (1877) treated this species in his "*Euptychia doris* group" together with others species currently placed in *Caeruleuptychia* Forster, 1964 and *Cepheuptychia* Forster, 1964. At the same work, Butler also pointed out that *E. brixius* and *E. brixiola*

might be the same species (indicated by braces in the text), and this hypothesis has been followed until nowadays (Lamas 2004). Weymer (1911) treated this species in his "*Cephus* group" together with others species also currently placed in *Caeruleuptychia* Forster, 1964 and *Cepheuptychia* Forster, 1964. In the same work, Weymer considered *E. brixiola* as a subspecies of *E. brixius*. Brévignon (2008) mentioned that the male genitalia of *C. brixius* is very distinct to the type species of the genus, *C. caerulea* (Butler, 1869), and this species could belong to a distinct genus.

***Paryphthimoides brixius brixius* (Godart, [1824]) comb. n.** (Figs 13-16, 53-57, 92-93, 105, 119, 122)

Satyrus brixius Godart, [1824]: 464, 490; syntype: Brazil. Neotype here designated: Madre de Dios, Peru; DZUP.

Caeruleuptychia brixius; Lamas *et al*., 1991: 10. – Lamas *et al*., [1997]: 65. – Robbins *et al*., 1996: 230.

Diagnosis. This subspecies is distinguished from *P. brixius brixiola* (Butler, 1867a) **comb. n.** by the bluish ground colour (greyish in *P. brixius brixiola*), DFW with marginal and subapical areas dark, well-marked dark spot between CuA_1-CuA_2 on DHW in males, dark umbra on VHW in both males and females, in addition to the larger ocelli on VW in females.

Abdomen. Male: 8th tergite trapezoid, developed and slightly sclerotized, with a well-sclerotized ring at basal margin; 8th sternite divided in two developed sclerotized plates, basally fused at median region; androconial dark elongated tufted scales at last abdominal segment. Female: 8th tergite trapezoid, developed and sclerotized; 8th sternite rectangular.

Male genitalia (Figs 53-57). Tegumen dorsally convex and subtriangular in lateral view; uncus slightly sinuous, about 1 ½ times longer than the tegumen, dorsally ovoid, apex laterally curved downwards and truncated in dorsal view; gnathos sinuous in lateral view, 2/3 the length of the uncus, larger at base and tapering at apex, combination of the ventral arm of tegumen and the dorsal arm of saccus sinuous; appendix angularis short, wider at base with apex curved downwards; anterior projection of saccus developed, cylindrical, and smaller than the gnathos; fultura inferior present; fultura superior absent; valva sub-rectangular covered by long hairy-like setae at latero-ventral view, and short ones at inner view, costa developed and sub-squared, dorsal margin straight with a slightly dorsal projection at apical third of the valva, ventral margin slightly projected at median region,

apex pointed and slightly serrated; aedeagus straight, about the same length as the valva, cylindrical, anterior region digitiform, posterior region about 1 ½ the length of the anterior region with apex truncated in dorsal view, distal opening ventral and longer than the proximal opening; two cornutal patches.

Female genitalia (Figs 92-93). 8th tergite rectangular; papilla analis subtriangular covered by long hairy-like setae at distal region, with a developed dorsal projection; apophysis posterior reduced; lamellae antevaginalis reduced; lamellae postvaginalis absent; ductus bursae membranous; corpus bursae about same length as ductus bursae, with ventrally paired signa.

Variation. Sexual dimorphism evident in the coloration of the wings, being the males bluish and females greyish-brown. Ventral ocelli are also smaller in males.

Distribution. So far, this subspecies is only known from Loreto and Madre de Dios, Peru (Fig. 122).

Biology and phenology. Collections records indicates the occurrence of this species in October and November (Fig. 105).

Host plant and immature stages. Unknown.

Type material, neotype designation and taxonomic history. *Satyrus brixius* Godart, [1824] was described based in a single specimen [holotype] from Brazil sent by the Russian naturalist Georg Heinrich von Langsdorff. The description of *Satyrus brixius* is very precise concerning the caeruleous coloration of the wings and other elements (eg.: number of transversal lines on both DW and VW, number and kind of ocelli on VW), and it agrees in all aspects with the phenotype of population from Peru (Madre de Dios and Loreto). Recent expeditions performed by the Laboratório de Estudos de Lepidoptera Neotropical (UFPR – Brazil) failed to find individuals of this species in some regions of Acre (Parque Estadual Chandless and Parque Nacional da Serra do Divisor) with similar vegetation to the Parque of Manu, and where this species might occur.

The holotype of *S. brixius* was not found at MNHN, NHMUK or Royal Museum of Edinburgh, where the Godart's types are supposedly deposited in (Grimshaw 1897; O. H. H. Mielke, G. Lamas, A. V. L. Freitas and R. Rougerie, *pers. comm.*). It is herein chosen a specimen from Peru as the neotype of *S. brixius*, aggreing with the Godart's

original description, to define the nominal taxon objectively and clarifying its taxonomic status. It has the following labels: /Neotypus/ Peru, M[adre] de Dios, Parque Manu, Pakitza, 340 m, 11°55'48"S 71°15'18"W, 9 Oct 1991, Leg. G. Lamas/ DZ 36.435/ Neotypus *Satyrus brixius* Godart, [1824] – T. Zacca, 2016/. DZUP.

Examined material. 6 males and 3 females (2 specimens dissected). PERU – *Madre de Dios*: Parque Manu, Pakitza, 340 m, 11°55'48"S 71°15'18"W, 1 male, 26.IX.1991, G. Lamas *leg*., DZ 36.436, 2 males, 30.IX.1991, R. Robbins *leg.*, DZ 36.437, DZ 36.438, 1 male, 2.X.1991, O. Mielke *leg*., DZ 36.439, 1 female, 4.X.1991, G. Lamas *leg*., DZ 35.887*, 1 male, 13.X.1991, O. Mielke *leg.*, DZ 36.440, 2 males, 19.X.1991, M. Casagrande *leg.*, DZ 25.882*, DZ 36.441, 1 female, 19.X.1991, O. Mielke *leg*., DZ 36.442, 1 female, 20.X.1991, O. Mielke *leg*., DZ 36.443 (DZUP).

***Paryphthimoides brixius brixiola* (Butler, 1867) comb. n.** (Figs 17-20, 103, 119, 122)

Euptychia brixius; Westwood, 1851 *in* Doubleday: 374. – Butler, 1868: 29. – Kirby, 1871: 52. – Butler, 1877: 121. – Weymer, 1911: 216. – D'Abrera, 1988: 761 (male, female).

Euptychia brixiola Butler, 1867a: 483, pl. 40, fig. 9; syntypes: [Brazil] Pará. Lectotype here designated: [Brazil] Pará; NHMUK. – Kirby, 1871: 52. – Butler, 1877: 121. – Kirby, 1879: 135. – Kaye, 1904: 181. – Kaye, 1921: 125. – Barcant, 1970: 24.

Caeruleuptychia brixius; Mielke & Casagrande, 1992: 180. – Mielke & Casagrande, 1998: 468 (appendix 6). – Racheli & Racheli, 2001: 326. – Brévignon, 2008: 60, figs 22a-22c (adult, male genitalia). – Silva *et al*., 2010: 10, 16, fig. 19. – Brévignon & Benmesbah, 2012: 52. – Cock, 2014: 11.

Caeruleuptychia brixia [misspelling]; Ramos, 2000: 40.

Caeruleuptychia brixia brixiola [misspelling]; Brown & Mielke, 1967: 91.

Caeruleuptychia brixius brixiola; Weymer, 1911: 216.

Cissia brixiola; Singer & Ehrlich, 1993.

Diagnosis. See above under *Paryphthimoides brixius brixius*.

Variation. The ground colour of DW is greyish-blue in males and greyish-brown in females. Males have the subapical ocellus in VFW smaller than the females. One female specimen from Rio de Janeiro, Brazil (DZ 36.495) has a very tiny ocellus between 2A-3A on VHW.

Distribution. This subspecies is distributed widely from Trinidad and Tobago to southern Brazil in altitudes below to 900 m (Fig. 122).

Biology and phenology. Based on examined specimens, this species is multivoltine and fly during all year around. It has been recorded in primary forests (Brévignon 2008) and captured in bait traps in canopy and understory (Silva *et al.* 2010).

Host plant and immature stages. Unknown.

Type material, lectotype designation and taxonomic history. *Euptychia brixiola* Butler, 1867 was described based on unstated number of specimens from Pará collected by Henry W. Bates. According to Butler (1867a) this species is distinguished from *S. brixius* by its smaller size and darker coloration. One syntype male of *E. brixiola* was found at NHMUK (Fig. 103), and it is herein designated as the lectotype of this species to fix the identity of the name and clarifying its application. It has the following labels: / TYPE/ Type of species/ Para, L[ower] Amazons, H. W. Bates/ ♂/ Godman-Salvin Coll. 1904. – 1. *Euptychia brixiola*, Butl[er]./ *Euptychia brixiola* ♂ Butler Monog[raph]./ BMNH(E) 1267032/. NHMUK; and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia brixiola* Butler, 1867. T. Zacca, 2016/. The lectotypes labels will be sent to the curator in charge.

Remarks. Weymer (1911) included *Euptychia brixius* in the "*Cephus* group" together with 15 more species (currently allocated in the genera *Caeruleuptychia* Forster, 1964 and *Cepheuptychia* Forster, 1964) based on their bluish coloration. Brévigon (2008) highlighted the differences in the male genitalia of this species when compared with other species of *Caeruleuptychia*, although he had not proposed any taxonomic changes.

Examined material. 33 males and 24 females (6 specimens dissected). BOLIVIA – *Cochabamba*: Rio Sajta, 1 male, 13.XII.2006, no collector, DZ 37.940 (DZUP). BRAZIL – *Roraima*: Alto Alegre, Ilha de Maracá, 1 male, 20.XI.1979, Gifford *leg*., DZ 36.450, 2 males, 3 females, 24-31.VIII.1987, Mielke & Casagrande *leg*., DZ 36.446, DZ 36.447, DZ 36.448, DZ 36.449, DZ 36.451, 1 male, 23-28.II.1988, Mielke & Casagrande *leg*., DZ 36.445; *Rondônia*: Vilhena, 1 male, 10.X.1986, C. Elias *leg*., DZ 36.452 (DZUP); *Pará*: Ourilândia do Norte, Serra da Onça, 1 male, 26.VII.1976, ex-coll. Gifford, DZ 36.453 (DZUP); *Maranhão*: Imperatriz, 1 female, 12.VII.1974, Exc. Depto. Zool., DZ 36.455, 1 female, 17.VII.1974, DZ 36.457; Santa Luzia, Açailândia-Santa Luzia road, Km 108, Fazenda Terrasse, 2 males, 4.VIII.1974, Mielke *leg*., DZ 36.456, DZ 5.257* (DZUP); *Tocantins*: Ilha do Bananal, 4 males, 3 females, 14-23.VI.1979, Raw *leg*., DZ 35.885*, DZ 5.253, DZ 36.472, DZ 36.473, DZ 36.475, DZ 36.478, DZ 36.480 (DZUP); *Goiás*: Goiás, 1 male, 2 females, 5.VI.1979, Gifford *leg*., DZ 5.258*, DZ 5.254, DZ 36.477, 3 males, 3 females, 25.II.1979, Gifford *leg*., DZ 36.460, DZ 36.463, DZ

36.466, DZ 36.467, DZ 36.469, DZ 36.479, 1 female, 25.II.1979, Gifford *leg*., DZ 36.476, 1 male, 26.II.1979, Raw *leg*., DZ 36.465, 2 females, 5.VII.1981, Raw *leg*., DZ 36.459, DZ 36.470; 15.575 S 50.3 W, 1 female, 5.II.1980, ex-coll Gifford, DZ 36.461, 2 females, 9.II.1980, Gifford *leg*., DZ 36.462, DZ 36.468, Corrego Paciência, 2 males, 30.VI.1980, ex-coll Gifford, DZ 36.458, DZ 36.471; *Mato Grosso*: Diamantino, Fazenda São João, 1 male, 21.XI.1984, Mielke & Casagrande *leg*., DZ 35.883* (DZUP); *Minas Gerais*: Marliéria, Parque Estadual do Rio Doce, 200 m, 2 males, 9.IX.1972, H. Ebert *leg*., DZ 36.481, DZ 36.482, 1 female, 16.XII.1972, H. & H. D. Ebert *leg*., DZ 36.483 (DZUP); *Rio de Janeiro*: Guapimirim, 1 female, 25.VI.1937, ex-coll. Gagarin, DZ 36.491, 1 male, 16.VI.1938, ex-coll. Gagarin, DZ 36.497, 1 male, 20.VII.1938, ex-coll. H. Ebert, DZ 36.486, 1 male, 17.VI.1938, ex-coll. Gagarin, DZ 36.487, 1 male, 19.III.1939, ex-coll. Gagarin, DZ 36.490, 1 female, 18.VIII.1939, ex-coll. H. Ebert, DZ 36.493, 1 male, 19.VII.1940, ex-coll. Gagarin, DZ 35.884*, 2 males, 2 females, 21.VII.1940, ex-coll. Gagarin, DZ 36.488, DZ 35.886*, DZ 36.492, DZ 36.495, 1 male, 27.VII.1940, ex-coll. H. Ebert, DZ 36.496, 1 male, 15.X.1940, ex-coll. Gagarin, DZ 36.485; Rio de Janeiro, Cosme Velho, Morro Dona Marta, 1 male, 9.IX.1938, ex-coll. Gagarin, DZ 36.489 (DZUP).

***Paryphthimoides terrestris* (Butler, 1867) comb. n.** (Figs 21-24, 58-62, 94-95, 104, 106-112, 119, 123)

Euptychia terrestris Butler, 1867a: 462, pl. 39, fig. 1; syntypes: Brazil, Pará. Lectotype male here designated: Brazil, Pará; NHMUK (examined). – Butler, 1868: 16. – Kirby, 1871: 48. – Möschler, 1877: 323. – Godman, 1880: 121. – Godman & Salvin, 1880: 79. – Godman & Salvin, 1901: 654. – Sharpe, 1890: 568. – Weymer, 1911: 200, pl. 47b. – Gaede, 1931: 465. – D'Abrera, 1988: 763 (male). – Emmel & Austin, 1990: 10.

Cissia terrestris; Mielke & Casagrande, 1998: 468 (appendix 6). – Ramos, 2000: 40. – Barlow *et al.* 2008: 1102. – Beccaloni *et al*., 2008: 329. – Brévignon, 2008: 72, fig. 35a-35c (male: adult, genitalia). – Montero-Ramírez & González-Maya, 2009: 83. – Zacca *et al*. 2011: 141. – Casagrande *et al*. 2012: 25.

Diagnosis. This species has been misidentified as *Cissia proba* (Weymer, 1911) (see Chapter 3) in some collections. This is probably due the fact that one of the syntypes from Butler's original type series of *Euptychia terrestris* from Tapajós, Amazons, collected by Henry W. Bates (BMNH(E) 1419994 – NHMUK) was misidentified and, in fact, agrees with *C. proba*. *Paryphthimoides terrestris* and *C. proba* are externally similar, but they are distinct to each other by the dark brown ground colour on VHW in *P. terrestris* (lighter in *C. proba*), narrow submedian line on both VFW and VHW (wider in *C. proba*), shape

of submarginal line on both VFW and VHW, and ocellus shape in M_3-CuA_1 in VHW. Also, *P. terrestris* and *C. proba* are sympatric in the Amazonian region, with the former extending until Northeast Brazil (Pernambuco, but no records are available from Ceará, Rio Grande do Norte and Paraíba), which might explain the difficulty in properly recognizing both species.

Male genitalia (Figs 58-62). Tegumen convex, laterally subtriangular; uncus slightly sinuous, about 2/3 the length of the tegumen, dorsally elliptical, apex laterally curved downwards and truncated in dorsal view; gnathos laterally sinuous, 2/3 the length of the uncus, larger at base and tapering at apex, combination of the ventral arm of tegumen and the dorsal arm of saccus slightly sinuous; appendix angularis short, wider at base with apex curved downwards; anterior projection of saccus developed, cylindrical, and almost the same length as the gnathos; fultura superior absent; fultura inferior present; valva sub-rectangular covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa developed and sub-squared, dorsal margin slightly sinuous with a developed dorsal projection at apical third of the valva, ventral margin slightly projected at median region, apex pointed and slightly serrated; aedeagus straight, smaller than the valva, cylindrical, anterior region digitiform, posterior region about 1 ½ the length of the anterior region with apex truncated in dorsal view, distal opening ventral and longer than the proximal opening; two cornutal patches.

Female genitalia (Figs 94-95). 8th tergite rectangular; papilla analis subtriangular covered by long hairy-like setae at distal region, and with a developed dorsal projection; apophysis posterior reduced; lamellae antevaginalis reduced; ductus bursae membranous; corpus bursae smaller than the ductus bursae, with dorsally paired signa.

Variation. Slight sexual dimorphism, being the FW more rounded in females and triangular in males. In general, males are longer (15–19 mm) than the females (17–20 mm). Intraspecific variation can be noticed by the thickness of the aedeagus and size of the dorsal projection of valva (but always more developed than in *C. touloulou*). Some specimens from Acre (voucher DZ 29.551) and Amazonas (voucher DZ 28.117, DZ 29.779) are darker (Figs 107-110), while some specimens of Maranhão (voucher DZ 28.127, DZ 28.132) are paler (Figs 111-112), but no other morphological differences were found that could indicate them as a distinct species.

Distribution. This species is distributed widely from Nicaragua to Midwest Brazil (Fig. 123), being associated with primary and secondary forests (Brévignon 2008). *Paryphthimoides terrestris* occurs sympatrically with some phenotypically similar

species, such as (1) *Cissia proba* in Acre, Amazonas, Pará and Rondônia (Brazil); (2) *P. poltys poltys* and *Paryphthimoides* sp. 5 **sp. n.** in Mato Grosso, Brazil; (3) *P. poltys binalinea* in Bolivar and Carabobo (Venezuela), Acre, Rondônia, Amazonas, Pará and Bahia (Brazil); (4) *P. touloulou* **comb. n.** in Cayenne, French Guiana; and (5) *Paryphthimoides* sp. 3 **sp. n.** in Pará, Brazil.

Additionally, there is a record from Boquete, Chiriquí (Panama) (D. Wade *in* Warren *et al.* 2016).

Biology and phenology. Based on examined specimens, *Paryphthimoides terrestris* is multivoltine, flying during all year around (Fig. 106). The similarity of the ventral wings elements (especially the elliptical incomplete ocelli in M_2-CuA_1 on VHW) of *P. terrestris* and *C. proba* suggests that these species might be involved in mimicry, but more studies on this topic is necessary.

Host plant and immature stages. Larvae of *Paryphthimoides terrestris* has been recorded feeding on Cyperaceae (*Cyperus* L. and *Scleria* Bergius) and Poaceae: *Lasiacis sloanei* (Griseb.), *Ichnanthus pallens* (Sw.), *Panicum pilosum* Sw., *P. polygonatum* Schrad, *Paspalum conjugatum* Bergius, *Pasp. decumbens* Stapf, *Setaria paniculifera* (Steud.) and *Tripsacum* L. (Beccaloni *et al.* 2008). Immature stages are unknown.

Type material, lectotypes designation and taxonomic history. *Euptychia terrestris* Butler, 1867 was described based on an unstated number of specimens from Pará (Lower Amazons), Brazil. Six syntypes were found at NHMUK. One of them is designated herein as the lectotype of *Euptychia terrestris* to fix the identity of the name (Fig. 104); this specimen has the following labels: /TYPE/ *Euptychia terrestris* Butler. Monog[raph]/ B.M.TYPE No Rh 3197 *Euptychia terrestris* ♂ Butl[er]./ Para. Purch[ased]. from Stevens. 50 – 4./ BMNH (E) 126717/; and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia terrestris* Butler, 1867. T. Zacca, det. 2016/. NHMUK. The last two labels will be sent to the curator later. The other five syntypes are here designated as paralectotypes of *Euptychia terrestris*, and will be similarly labelled; however, the syntype BMNH(E) 1419994 was misidentified by Butler (1967), and indeed agrees with *Cissia proba* (see Chapter 3).

Remarks. Specimens identified as *C. terrestris* from Trinidad by DeVries (1987), Singer & Ehrlich (1993), Wood & Gillman (1998) and Beccaloni *et al*. (2008) are, in fact,

Magneuptychia andrei Zacca, Casagrande & Mielke, 2017 (Zacca *et al.* 2017). However, based on the examined specimens from several collections it is possible to affirm that both *P. terrestris* and *M. andrei* occur sympatrically in Trinidad and Tobago.

Examined material. 51 males and 41 females (23 specimens dissected). NICARAGUA – *no specific locality*: 1 female, no data, no collector, Ex Grose Smith, 1910, BMNH(E) 1421984 (NHMUK); *Chontales*: 1 female, no data, T. Belt *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421985 (NHMUK); *Matagalpa*: 1 male, no data, Richardson *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421953* (NHMUK). PANAMA – *Chiriqui*: David, 1 male, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421954* (NHMUK). VENEZUELA – *Amazonas*: San Carlos de Río Negro to Solano track, kms 1-12, 1000 m, 1 male, 5-17.III.1994, A. Neild *leg*. (AN); *Anzoátegui*, Bergantín – Buenos Aires road, SW SA. de Turimiquire, 600-850 m, 1 male, 6-7 and 9.X.2002, A. Neild *leg*. (AN); *Bolivar*: Sierra de Lema, Km 131.7, 1400 m, 1 male, 26.X.2000, A. Neild *leg*. (AN), Jabillal, Lower Caura River, 100 m, 1 male*, 20.IX.1994, A. Neild *leg*. (AN); *Maipures*: Orinoco, 1 male, II.1893, C. W. Ellacombe *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420917 (NHMUK), 1 male, XII.1898, Cherrie *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420947* (NHMUK); *Trujillo*: La Gira, Betijoque, 550m, 1 female, 14.XII.1993, A. Neild *leg*. (AN). TRINIDAD AND TOBAGO – *no specific locality*: Northen Mountains, 2 males, XII.1938-I.1939, A. Hall *leg*. (BM), 1 male, 1 female, I.1936, A. Hall *leg*. (BM); *Port of Spain*: Maraval, 1 male, XI.1931-II.1932, A. Hall *leg.* (BM), R. Stanway Parris, 3 males, II.1921, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420762*, BMNH(E) 1420731, BMNH(E) 1420762 (NHMUK), St. Ann's Valley, 1 male, no data, G. E. Tryhane *leg*., BMNH(E) 1421829 (NHMUK), El Tucuche, 1 male, VIII.1905, F. Birch *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420670 (NHMUK). GUYANA – *no specific locality*: 1 female, no data, no collector, Crowley Bequest, 1901-78, BMNH(E) 1421860* (NHMUK), Quonga, 1 male, no data, H. Whitley *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421891* (NHMUK); *Essequibo*: Bartica, 1 male, III.1926, A. Hall *leg*. (BM); *Cuyuni-Mazaruni*: Omai mine, 1 female, no data, W. Schaus, 1905-244, BMNH(E) 1421736 (NHMUK). SURINAM – *no specific locality*: 1 male, no data, no collector, ex-coll. Fruhstorfer, BMNH(E) 1421923* (NHMUK). FRENCH GUIANA – *Cayenne*: 4 males, no data, Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421674*, BMNH(E) 1421767, BMNH(E) 1421922, BMNH(E) 1421830 (NHMUK), 1 male, no data, Bar *leg*., Ex Deyrolle, Godman-Salvin Coll. 1904-1, BMNH(E) 1421705 (NHMUK). BRAZIL – *Acre:* Mâncio Lima, Parque Nacional Serra do Divisor, Moa river, 7°26'52"S 73°39'55"W, 1 male, 1 female, 20-27.VI.2013, Mielke, Casagrande, Carneiro, Dias & Dolibaina *leg*., DZ 29.554, DZ 29.551, BC-DZ Willmott 218, Tarauacá, 250 m, 1 male, 25.IX.1977, H. Ebert *leg*., DZ 28.115; *Rondônia:* Jarú, 250 m, 1 male, 2 females, III.1976, H. Ebert, DZ 28.109, DZ 28.110, DZ 28.111, 16°27'S 62°28'W, 1 female, 4-12.IX.1977, Gifford & Negrett *leg*., DZ

28.113; *Amazonas:* Barcelos, Rio Ararão, Rio Padauari, 0°31’18” N, 64°03’30”W, 1 male, 2 females, 4-7.VI.2010, Mielke & Casagrande *leg*., DZ 37.934, DZ 37.935, BC-DZ Willmott 215, 216, DZ 29.779*, Barcelos, Rio Padauari, Comunidade Acuquaia, 0°13’36”N 63°59’20” W, 3 females, 8-10.VI.2010, Mielke & Casagrande *leg*., DZ 35.889, DZ 28.116, DZ 35.890, Ipixuna, Comunidade São Vicente, Rio Liberdade, 7°21’47”S 71°5207”W, 1 male, 12-15.V.2011, Mielke & Casagrande *leg*., DZ 35.888, Nhamundá, Rio Nhamundá, Igarapé Igreja, 1°35’11”S 57°37’34”W, 1 male, 1 female, 16-19.V.2008, Mielke & Casagrande *leg.*, DZ 28.117*, DZ 37.904, BC-DZ Willmott 213; *Roraima:* 1 female, no data, H. Whitley *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421798 (NHMUK), Alto Alegre, Ilha de Maracá, 1 male, 1 female, 24-31.VIII.1987, Mielke & Casagrande *leg.*, DZ 28.107, DZ 28.105*, 1 female, 26.XI-2.XII.1987, Mielke & Casagrande *leg*., DZ 28.106, Boa Vista, 1 female, VII.1972, Kesselring *leg*., DZ 28.114; *Amapá*: Serra do Navio, Assentamento, 1 female, 30.VII.2007, Mielke & Casagrande *leg*., DZ 37.936, BC-DZ Willmott 217, 1 female, 31.VII.2007, Mielke & Casagrande *leg*., DZ 37.937, BC-DZ Willmott 214, Rio Amapari, 100 m, 2 females, XI.1959, H. Ebert *leg*., DZ 28.121, DZ 28.118*, Macapá, 1 female, 16.XII.1978, Raw *leg*., DZ 28.120, Porto Grande, 1 male, 4-5.III.2013, F. Dias *leg*. (FD), 2 males, 13-27.IX.2014, F. Dias *leg*. (FD); *Pará*: Lower Amazons, 1 male, no data, H. W. Bates *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1419995 (NHMUK), São Félix do Xingu, Maruá, 1 female, 14.II.2010, MGCL-LOAN-268 (ZUEC), Paragominas, Água Azul, 1 female, 25.VII.1974, Exc. Dept. Zool. *leg*., DZ 28.123, Paratins-Gurupá, 1 female, X.[no year], ex-coll. H. Ebert, DZ 28.126, Rio Cuminá, Igarapé dos Índios, 1 female, 16.X.1936, D’Almeida *leg*., DZ 28.125, Itaituba to Óbidos, 1 female, I-IV.1906, W. Hoffmanns *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420855* (NHMUK), Óbidos, 1 male, no data, H. W. Bates *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1419993 (NHMUK), 1 male, 1 female, X-XI.1904, M. de Mathan *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420793, BMNH(E) 1420824 (NHMUK), Tapajós, 1 male, no data, H. W. Bates *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1419998 (NHMUK); *Maranhão:* Feira Nova do Maranhão, Fazenda Forquilha dos Brejos, 7°00’29”S 46°26’30”W, 2 males, 4 females, 13-16.IV.2011, O.-C. Mielke *leg*., DZ 35.895*, DZ 35.894, DZ 35.893, DZ 35.891, DZ 35.892, DZ 37.938, BC-DZ Willmott 211, 1 male, 1 female, 14-21.VIII.2011, Mielke *leg*., DZ 28.127, BC-DZ Willmott 190, DZ 28.132*, BC-DZ Willmott 189, 1 male, 15-25.II.2012, O.-C. Mielke *leg*., DZ 28.133*, Imperatriz, 1 male, 3.VII.1974, Exc. Dept. Zool. *leg*., DZ 28.129*, Imperatriz, 1 male, 9.VIII.1974, Exc. Dept. Zool. *leg*., DZ 28.130*, Açailândia, 1 male, 22.VIII.1974, Mielke *leg*., DZ 28.131*, Santa Luzia, Fazenda Terrasse, Km 108 Açailândia-Santa Luzia, 1 female, 3.VIII.1974, Mielke *leg*., DZ 28.134; *Pernambuco:* Escada, 150 m, 1 female, 30.IX.1967, H. Ebert *leg*., DZ 28.138, Ipojuca, 100 m, 1 female, 23.IX.1961, Ebert *leg*., DZ 28.135, São Lourenço da Mata, Tiuma, 100 m, 1 male, 4.X.1958, H. Ebert *leg*., DZ 28.141, 2 males, 8.X.1960, Ebert *leg*., DZ 28.137, DZ 28.139, 1 female, 17.III.1973, Ebert *leg*., DZ 28.143, 1 female, 17.III.1973, Ebert *leg.*, DZ 28.136;

Bahia: Jitaúna, 1 male, 5.III.1964, ex-coll. H. Ebert, DZ 28.229*, 1 male, 26.III.1969, ex-coll. H. Ebert, DZ 28.228* (DZUP).

***Paryphthimoides touloulou* (Benmesbah, 2015) comb. n.** (Figs 25-26, 124)

Cissia touloulou Benmesbah, 2015: 152, figs 21-24, 27, 29, 31, 32a, 34-35 (male: adult, genitalia); holotype: Montsinéry, Annamites, Cayenne, French Guyana; MB (examined).

Diagnosis. This species is most similar in appearance with *Paryphthimoides terrestris*, but it can be separated by its smaller size (15 mm), FW rounded, submarginal line strongly crenulated between CuA_1 and the inner margin of the VFW, VHW with a rounded incomplete ocellus in M_3-CuA_1. Furthermore, the uncus of *P. touloulou* is ovoid (elliptical in *P. terrestris*) and the dorsal projection of the valva is strongly reduced (developed in *P. terrestris*).

Distribution. So far, this species is only known to the type locality, Cayenne, French Guiana (Fig. 124).

Biology and phenology. This species seems rarer than *P. terrestris*, occurring in secondary forest surrounded by primary forest and savanna (Benmesbah 2015).

Remarks. This species was recently described (Benmesbah, 2015) and no additional specimens were found in the examined collections. Females and immature stages of this species remain unknown.

***Paryphthimoides* sp. 1 Zacca, Casagrande & Mielke sp. n.** (Figs 27-28, 63-67, 119, 124)

Cissia terrestris (Butler, 1867) [misidentification]; Maza & Maza, 1993: 182. – Luis-Martínez *et al*., 1995: 119.

Diagnosis. This species is characterized by the greyish ground colour in VW, reddish brown submedian and median lines in VW, submarginal lines distally pointed in VFW, ocelli 3 and 4 reduced and rounded in VHW.

Description. *Head:* brown, frons grayish brown; eyes chocolate brown, densely hairy; post-genal area creamy; labial palpi curved upwards, dorsally with short mixed dark brown and creamy scales, laterally with short creamy scales, ventrally with elongated

mixed dark brown and creamy scales at first and second segments, dark brown short scales at third segment; antennae brown with apex dark, laterally with white scales on each side of the base of the flagellomeres. *Thorax*: dorsally and ventrally covered by greyish-brown elongated scales. *Wings*: FW: 20 mm (HT). DFW and DHW: ground colour brown; elements of the VFW and VHW not visible; fringes brown. DHW with a faded rounded ocellus in CuA_1-CuA_2, bipupilated and circled by a narrow yellowish ring; region between the submarginal line and the outer margin lighter. VFW: ground colour lighter than the DFW; reddish brown broad (approximately 1 mm) submedian and median lines between R-2A; narrow and brown umbra extending between R_5-2A; dark brown submarginal and marginal lines, submarginal line crenulated from R_5 to the inner margin, marginal line straight from R_4 to the inner margin; one tiny subapical ocellus in M_1-M_2, bipupilated and circled by a narrow yellowish ring, two others incomplete (only pupils and ocellar ring) tiny and faded in M_2-M_3 and M_3-CuA_1. VHW: ground colour lighter than the DHW; reddish brown submedian and median lines broad (approximately 1 mm) from the costal to the inner margin; faded brown umbra extending from Rs to 2A; dark brown crenulated submarginal and marginal lines, distally pointed, submarginal line reddish from CuA_2 to the inner margin, where it is fused with the median line; submarginal region with five ocelli, each one surrounded by a narrow yellowish ring, in Rs-M_1 (ocellus 1), M_1-M_2 (ocellus 2), M_2-M_3 (ocellus 3), M_3-CuA_1 (ocellus 4), CuA_1-CuA_2 (ocellus 5); ocellus 1 smaller than the others (about ¼ the diameter of its neighbour), ocelli 2 and 5 large and almost the same size, ocelli 3 and 4 incomplete and with developed pupils, ocellus 3 diagonally located in relation to the others, and ocellus 4 rounded and small.

Male genitalia (Figs 63-67). Tegumen convex, laterally subtriangular; uncus slightly sinuous, about 2/3 the length of the tegumen, dorsally elliptical, apex laterally curved downwards and narrow in dorsal view; gnathos laterally sinuous, about 2/3 the length of the uncus, larger at base and tapering at mid-apical region; combination of the ventral arm of tegumen and the dorsal arm of saccus slightly sinuous; appendix angularis developed, wider at base and with apex curved downwards; anterior projection of saccus developed, cylindrical and straight, almost the same length as the gnathos; fultura superior absent; fultura inferior present; valva sub-rectangular covered by long hairy-like setae latero-ventrally and short ones at inner side, costa developed and sub-squared, dorsal margin slightly sinuous with a dorsal projection at apical third, apex smoothly serrated at

inner side; aedeagus straight, smaller than the valva, thin, cylindrical, anterior region lanceolated, posterior region about 1 ½ the length of the anterior region and apex with a small slit; two cornutal patches.

Female. Unknown.

Distribution. This species is endemic from Mexico with occurrence in Sierra Madre del Sur (Jalisco, Coahuila (K. Davis & M. Stangeland, J. Kemner *in* Warren *et al.* 2016) and Oaxaca) in altitudes up to 1500 m (Fig. 124).

Biology and phenology. Unknown.

Host plant and immature stages. Unknown.

Type material. Holotype male with the following labels: /Atoyac, Vera Cruz, [Mexico], April. H. H. S./ Godman-Salvin Coll. 1904–1. B[iologia]. C[entrali]. A[mericana]. Lep[idoptera]. Rhop[alocera]. *Euptychia* sp.? near *camerta*, Cram[er]./ BMNH(E) 1421892/; and two others labels will be added later: /Holotypus/ Holotypus *Paryphthimoides* sp.1. T. Zacca, det. 2016/. NHMUK. The last two labels will be sent to the curator later.

PARATYPES: 1 male, the same label as the holotype, BMNH(E) 1421861*, B. M. (N. H.) Rhopalocera Vial No. 9191 (NHMUK). MEXICO – *Oaxaca*: Candelaria Loxicha, 500 m, 1 male, 17.VI.1972, E. C. Welling *leg*. (MGCL), 1 male, 5.VIII.1971 (MGCL), 1 male, 31.VIII.1971 (MGCL).

***Paryphthimoides* sp. 2 Zacca, Casagrande & Mielke sp. n.** (Figs 29-30, 68-72, 124)

Euptychia terrestris [misidentification]; Dognin, 1891: 33.

Diagnosis. This species is easily distinguished from its congeners by the greyish-white ground colour between the basal and submarginal regions in VW, ochre narrow submedian and median lines, and the reduced ocellus in CuA_1-CuA_2 in VHW.

Description. *Head:* brown, frons grayish brown; eyes chocolate brown, densely hairy; post-genal area creamy; labial palpi curved upwards, dorsally with short mixed dark brown and creamy scales, laterally with short creamy scales, ventrally with elongated

mixed dark brown and creamy scales at first and second segments, dark brown short scales at third segment; antennae brown with dark apex, laterally with white scales on each side of the base of the flagellomeres. *Thorax*: dorsally and ventrally covered by greyish-brown elongated scales. *Wings*: FW: 20 mm (HT). DFW and DHW: ground colour brown; elements of the VFW and VHW not visible; fringes brown. DHW with a faded, small and rounded ocellus in CuA_1-CuA_2, bipupilated and circled by a narrow yellowish ring; region between the submarginal line and the outer margin lighter. VFW: greyish-white ground colour between the basal and submarginal regions, brown from the submarginal to the outer margin; narrow ochre submedian and median lines between R-2A; dark brown submarginal and marginal lines, submarginal line crenulated from R_5 to the inner margin and distally pointed, marginal line straight from R_4 to the inner margin; one tiny subapical ocellus in M_1-M_2, bipupilated and circled by a narrow yellowish ring. VHW: greyish-white ground colour; ochre narrow submedian and median lines from the costal to the inner margin; faded brown umbra extending from Rs to 2A, dark brown crenulated submarginal and marginal lines, distally pointed, submarginal line ochre from CuA_2 to the inner margin, where it is fused with the median line; submarginal region with five ocelli, each one surrounded by a narrow yellowish ring, in Rs-M_1 (ocellus 1), M_1-M_2 (ocellus 2), M_2-M_3 (ocellus 3), M_3-CuA_1 (ocellus 4), CuA_1-CuA_2 (ocellus 5); ocellus 1 smaller than the others (about ¼ the diameter of its neighbour), ocelli 2 and 5 large, and ocellus 5 larger than the ocellus 2, ocelli 3 and 4 incomplete and have developed pupils, ocellus 3 diagonally located in relation to the other, and ocellus 4 elliptical.

Male genitalia (Figs 68-72). Tegumen dorsally convex and projected out at anterior region; uncus almost 1.5 times longer than the tegumen, laterally sinuous with a narrow and curved downwards apex, dorsally mid-apical region elliptical with a narrow apex; gnathos almost 2/3 the length of the uncus, curved upwards, basal region wide, tapering at mid-apical region in lateral view; appendix angularis developed, basal region wide, apical region elongated and curved downwards; anterior projection of saccus developed, cylindrical and straight, almost the same length as the gnathos; valva sub-trapezoid covered by elongated setae, costa developed and wide, dorsal margin with a median apical projection, apex serrated at inner side; aedeagus as longer as the valva, thin, dorsally with anterior region lanceolated, posterior region with a small slit at apex; two symmetric cornutal paths almost 2/3 the length of posterior region of aedeagus.

Distribution. To date, *Paryphthimoides* sp.2 is only known to west Ecuador (Loja and El Oro) (Fig. 124).

Biology and phenology. This species flies between May (transitional month) and August, during the dry season (K. R. Willmott, *pers. comm.*). Other biological aspects are still unknown.

Host plant and immature stages. Unknown.

Type material. Holotype male with the following labels: /Environs de Loja, Equateur, 1890/ Joicey Bequest Brits. Mus. 1934-120/ BMNH(E) 1422216/; and two others labels will be added later: /Holotypus/ Holotypus *Paryphthimoides* sp.2. T. Zacca, det. 2016/. NHMUK. The last two labels will be sent to the curator later.

PARATYPES: ECUADOR – *Loja*: 1 male, VIII.[18]86, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1422247* (NHMUK), Reserva Jorupe, W Macará, 4°22.74'S 79°54.23'W, 560 m, 1 male, 12.V.2008, J. Hall & K. Willmott *leg*., FLMNH-MGCL # 118429*, DNA voucher # KW – 080512-02, Genitalia vial SN-14-96 S. Nakahara, (MGCL); *El Oro*: 1 male, VI.1964, Lafebre *leg*., Acc. 21811 (CMNH).

***Paryphthimoides* sp. 3 Zacca, Casagrande & Mielke sp. n.** (Figs 31-32, 73-77, 124)

Diagnosis. This species differs from the other species of the "*terrestris* group*"* by its larger size, well developed ocellus in CuA_1-CuA_2, occupying the entire width of the cell in DHW; VW with the submarginal line distally pointed; VHW with a narrow ocellar ring in the ocelli 3 and 4.

Description. *Head:* brown, frons grayish brown; eyes chocolate brown, densely hairy; post-genal area light brown; labial palpi curved upwards, dorsally with mixed black and creamy short scales, laterally with creamy short scales, ventrally with mixed black and creamy elongated scales at first and second segments, black short scales at third segment; antennae brown with dark apex, laterally with white scales on each side of the base of the flagellomeres, antennal club with 10 segments. *Thorax*: dorsally and ventrally covered by greyish-brown elongated scales, Tegulae covered by iridescent green-orange scales; coxae and femur covered by mixed greyish-brown scales, the other segments brown. *Wings*: FW: 20 mm (HT). DFW and DHW: ground colour brown; elements of the VFW

and VHW visible due to wing transparency; fringes brown. DHW with a developed rounded ocellus in CuA_1-CuA_2, bipupilated and circled by a narrow yellowish ring; region between the submarginal line and the outer margin whitish. VFW: ground colour lighter than the DFW; reddish brown submedian and median lines broad (approximately 1 mm) from R-2A; umbra dark brown extending from R_5-2A; dark brown submarginal and marginal lines, submarginal line crenulated from R_5 to the inner margin, marginal line straight from R_4 to the inner margin; one subapical ocellus in M_1-M_2, bipupilated and circled by a narrow yellowish ring, two other incomplete (only pupils and ocellar ring) tiny and faded in M_2-M_3 and M_3-CuA_1. VHW: ground colour lighter than the DHW; reddish brown submedian and median lines broad (approximately 1 mm) from the costal to the inner margin; umbra dark brown extending from Rs to 2A, dark brown crenulated submarginal and marginal lines, submarginal line reddish from CuA_2 to the inner margin, where it is fused with the median line, marginal line thicker between CuA_2 and tornus; submarginal region with five ocelli, each one surrounded by a narrow yellowish ring, in Rs-M_1 (ocellus 1), M_1-M_2 (ocellus 2), M_2-M_3 (ocellus 3), M_3-CuA_1 (ocellus 4), CuA_1-CuA_2 (ocellus 5); ocellus 1 smaller than the others (about ¼ the diameter of its neighbour), ocelli 2 and 5 large and almost the same size, ocelli 3 and 4 incomplete and with developed pupils, ocellus 3 diagonally located in relation to the other, and ocellus 4 elliptical.

Male genitalia (Figs 73-77) (HT dissected): tegumen convex in dorsal view, laterally subtriangular; uncus dorsally ovoid, laterally sinuous, straight, with apex curved downwards; gnathos sinuous, 2/3 the length of the uncus, in lateral view angled upwards then curved posteriorly down to near horizontal tapering towards tip; combination of the ventral arm of tegumen and dorsal arm of the saccus straight; appendix angularis short, broad at base, narrow at apex and curved inwards; anterior projection of saccus developed, cylindrical, longer than the gnathos and curved upwards; fultura superior absent; fultura inferior in V-shape; valva sub-rectangular covered by long hairy-like setae latero-ventrally and short ones at the inner side, costa developed, dorsal margin sinuous with a well-developed dorsal projection at apical third of the valva, ventral margin slightly projected at median region, apex pointed and serrated; aedeagus straight, longer than the valva, cylindrical, anterior region digitiform, posterior region about 1 ½ the length of the anterior region with truncated apex in dorsal view, distal opening ventral and longer than the proximal opening.

Female. Unknown.

Distribution. To date, this species is only known from the type locality (Fig. 124).

Biology and phenology. Unknown.

Host plant and immature stages. Unknown.

Type material. Holotype male with the following labels: /Holotypus/ Água Azul, Paragominas, PA [Pará], 16.VIII.1974, Mielke *leg*./ DZ 28.122*/ Holotypus *Paryphthimoides* sp. 3. T. Zacca, det. 2016/. DZUP.

Remarks. Although the description of this species is based on a single specimen, morphological evidence supports its specific status rather than a variation of any other species of *Paryphthimoides*. Pará is one of the fewer inventoried Brazilian states concerns the butterfly fauna (Santos *et al.* 2008), without any especialist in Satyrinae, that difficults to access the richness of species in this area. Hopefully future studies in this region will report the occurrence of this species in other localities of Pará.

***Paryphthimoides* sp. 4 Zacca, Casagrande & Mielke sp. n.** (Figs 33-36, 78-82, 96-97, 124)

Diagnosis. This species is characterized by the DHW without ocellus in CuA_1-CuA_2 (or if present, it is always faded), submarginal line distally rounded in VW, and VHW with median line very irregular and with a thick ocellar ring in ocelli 3 and 4.

Description. *Head:* brown, frons grayish brown; eyes chocolate brown, densely hairy; post-genal area creamy; labial palpi curved upwards, dorsally with mixed black and creamy short scales, laterally with creamy short scales, ventrally with mixed black and creamy elongated scales at first and second segments, black short scales at third segment; antennae brown with dark apex, laterally with white scales on each side of the base of the flagellomeres, antennal club with 10 segments. *Thorax*: dorsally and ventrally covered with greyish-brown elongated scales, tegulae covered by iridescent green-bluish scales; coxae and femur covered by mixed greyish-brown scales, the other segments brown. *Wings*: FW length: male: 17–19 mm (HT: 18 mm), female: 18 mm (AT). DFW and DHW: ground colour brown; elements of the VFW and VHW observable through transparency; fringes brown. DHW without ocellus in CuA_1-CuA_2 or if present, it is always faded;

region between the submarginal line and the outer margin whitish. VFW: ground colour lighter than the DFW; reddish brown submedian and median lines broad (approximately 1 mm) between R-2A; umbra dark brown extending between R_5-2A; dark brown submarginal and marginal lines, submarginal line slightly crenulated from R_5 to the inner margin, marginal line straight from R_4 to inner margin; one subapical ocellus in M_1-M_2, bipupilated and circled by a narrow yellowish ring, one other incomplete (only pupils and ocellar ring) tiny and faded in M_2-M_3. VHW: ground colour lighter than the DHW; reddish brown submedian and median lines broad (approximately 1 mm) and irregular from the costal to the inner margin; umbra dark brown extending from Rs to 2A; region between the umbra and the submarginal line whitish; submarginal and marginal lines dark brown and crenulated, submarginal line reddish from CuA_2 to inner margin, where it fused with the median line, marginal line thicker between CuA_2 and tornus; submarginal region with five ocelli in Rs-M_1 (ocellus 1), M_1-M_2 (ocellus 2), M_2-M_3 (ocellus 3), M_3-CuA_1 (ocellus 4), CuA_1-CuA_2 (ocellus 5); ocellus 1 smaller than the others (about ¼ the diameter of its neighbour) and with only one silver pupil; ocelli 2 and 5 large, almost the same size, and with two silvery pupils; ocelli 3 and 4 incomplete and with developed silvery pupils and wide ochre ocellar wing, ocellus 3 diagonally located in relation to the other, and ocellus 4 elliptical, occupying almost the entire length of the cell.

Male genitalia (Figs 78-82): tegumen convex in dorsal view, laterally subtriangular; uncus dorsally ovoid, laterally sinuous, straight, with apex curved downwards; gnathos sinuous, 2/3 the length of the uncus, in lateral view angled upwards then curved posteriorly up to near horizontal tapering towards tip; combination of the ventral arm of tegumen and dorsal arm of the saccus slightly curved; appendix angularis developed, broad at base, narrow at apex and curved inwards; anterior projection of saccus developed, cylindrical, longer than the gnathos and straight; fultura superior absent; fultura inferior in V-shape; valva sub-rectangular covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa developed, dorsal margin sinuous with a developed dorsal projection at apical third of the valva, ventral margin slightly projected at median region, apex pointed and serrated; aedeagus straight, longer than the valva, cylindrical, anterior region digitiform, posterior region about 1 ½ the length of the anterior region with truncated apex in dorsal view, distal opening ventral and longer than the proximal opening.

Female genitalia (Figs 96-97): 8th tergite rectangular; papilla analis subtriangular covered by long hairy-like setae at distal region, with a developed dorsal projection; apophysis posterior reduced; lamellae antevaginalis absent; ductus bursae membranous; corpus bursae smaller than the ductus bursae, with paired signa dorsally.

Variation. Females have the FW more rounded than males. Also, the median and submedian lines of females are ochre brown, and ground colour is lighter than in males.

Distribution. To date, this species is only known for the type locality in Goiás, Brazil (Fig. 124).

Biology and phenology. Unknown.

Host plant and immature stages. Unknown.

Type material. Holotype male with the following labels: /Holotypus/ Ilha do Bananal, GO [sic] [Tocantins, Brazil], 24.VI.1979, Gifford *leg.*/ ex coll. Gifford/ DZ 28.146/ Holotypus *Paryphthimoides* sp. 4. T. Zacca, det. 2016/. DZUP. Allotype female with the following labels: /Allotypus/ Ilha do Bananal, 10°25'S 50°27'N, GO [sic] [Tocantins, Brazil], 20.VI.1979, Gifford *leg.*/ ex coll. Gifford/ DZ 28.160/ Allotypus *Paryphthimoides* sp. 4. T. Zacca, det. 2016/. DZUP.

PARATYPES – 4 males (3 specimens dissected), same locality as the holotype: 21.VI.1979, 23.VI.1979, 26.VI.1979, Gifford *leg*., DZ 28.150*, DZ 28.144*, DZ 28.147*, DZ 28.156.

***Paryphthimoides* sp. 5 Zacca, Casagrande & Mielke sp. n.** (Figs 37-40, 83-87, 98-99, 113-118, 125)

Paryphthimoides poltys [misidentification]; Lewis, 1973: 61, fig. 10 (male)

Argyreuptychia (?) *terrestris*; Brown & Mielke, 1967: 92. – Brown & Mielke, 1968: 151.
Cissia terrestris [misidentification]; Motta, 2002: 157. – Emery *et al*. 2006: 90.
Cissia terrestres [sic]; Garcia-Salik *et al*., 2014: 279.
Cissia thobiei [misidentification]; Canals, 2003: 392.

Diagnosis. This species is distinguished from other species on the "*terrestris* group" by a faded ocellus in CuA_1-CuA_2 in DHW (altought absent in some individuals), creamy

ground colour on wings underside, distally pointed submarginal line crenulated between CuA_1, and inner margin in VFW, and a reduced ocellus in CuA_1-CuA_2 in VHW.

Description. *Head:* brown, frons grayish brown; eyes chocolate brown, densely hairy; post-genal area light brown; labial palpi curved upwards, dorsally with mixed black and creamy short scales, laterally with creamy short scales, ventrally with mixed black and creamy elongated scales at first and second segments, black short scales at third segment; antennae brown with dark apex, laterally with white scales on each side of the base of the flagellomeres, antennal club with 10-11 segments (HT = 10 segments). *Thorax*: dorsally and ventrally covered with greyish-brown elongated scales, tegulae covered by iridescent green-bluish scales; coxae and femur covered by mixed greyish-brown scales, the other segments creamy mixed with brown scales. *Wings*: FW: males = 18-20 mm; females = 16-20 mm (HT: 18 mm; AT: 20 mm). DFW and DHW: ground colour brown; elements of the VFW and VHW visible due to wing transparency; fringes brown. DHW with a small rounded ocellus in CuA_1-CuA_2, bipupilated and circled by a narrow yellowish ring; region between the submarginal line and the outer margin whitish. VFW: ground colour lighter than the DFW; reddish brown submedian and median lines broad (approximately 1 mm) between R-2A; umbra dark brown extending from R_5-2A; dark brown submarginal and marginal lines, submarginal line crenulated with apex rounded from R_5 to the inner margin, marginal line straight from R_4 to inner margin; one small subapical ocellus in M_1-M_2, bipupilated and circled by a narrow yellowish ring, and one other very tiny and incomplete in M_2-M_3. VHW: ground colour lighter than the DHW; reddish brown submedian and median lines broad (approximately 1 mm) from the costal to the inner margin; umbra dark brown extending from Rs to 2A, dark brown crenulated submarginal and marginal lines, submarginal line reddish from CuA_2 to the inner margin, where it fused with the median line, marginal line thicker between CuA_1 and tornus; submarginal region with five ocelli, each one surrounded by a narrow yellowish ring, in Rs-M_1 (ocellus 1), M_1-M_2 (ocellus 2), M_2-M_3 (ocellus 3), M_3-CuA_1 (ocellus 4), CuA_1-CuA_2 (ocellus 5); ocellus 1 smaller than the others (about ½ the diameter of its neighbour), ocelli 2 and 5 large and almost the same size, ocelli 3 and 4 incomplete with developed pupils and ocellar ring.

Male genitalia (Figs 83-87): tegumen convex in dorsal view, laterally subtriangular and projected out at anterior region; uncus dorsally elliptical, slightly sinuous in lateral view, with apex curved downwards; gnathos sinuous, about 2/3 the length of the uncus, in

lateral view angled upwards then curved posteriorly down to near horizontal tapering towards tip; combination of the ventral arm of tegumen and dorsal arm of the saccus sinuous; appendix angularis short, broad at base, narrow at apex and curved inwards; anterior projection of saccus developed, cylindrical and the same length as the gnathos; fultura superior absent; fultura inferior in V-shape; valva sub-rectangular covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa developed, dorsal slight margin projected at apical third, ventral margin slightly projected at median region, apex pointed and serrated; aedeagus straight, the same length as the valva, cylindrical, anterior region digitiform, posterior region half the length of the anterior region with truncated apex in dorsal view, distal opening ventral and longer than the proximal opening.

Female genitalia (Figs 98-99). 8th tergite rectangular; papilla analis subtriangular, more sclerotized at base, covered by short and sparsely hairy-like setae at distal region, with a developed dorsal projection, apophysis posterior reduced; lamellae antevaginalis absent; ductus bursae membranous; corpus bursae smaller than the ductus bursae, with paired signa ventrally.

Variation. The sexual dimorphism is characterized by the always present ocellus in CuA_1-CuA_2 on DHW in females, while its presence is variable in males. The submarginal and post-discal lines in VHW can show variable distance from each other near to the inner margin. VW coloration can also be variable (Figs 113-118).

Distribution. This species is widely distributed from Midwest Brazil (Mato Grosso, Goiás, Distrito Federal, Minas Gerais, São Paulo, Paraná) to Paraguay (Paraguai) and Argentina (Missiones) (Fig. 125), mainly associated with dry forests and riparian areas (Brown & Mielke 1967). It is a common species and widely distributed between 100-1000 m (Brown & Mielke 1967). Occurs sympatrically with some phenotypically species, such as (1) *P. poltys poltys* in Mato Grosso, Goiás, Distrito Federal, Minas Gerais, São Paulo, Paraná (Brazil) and Paraguay; (2) *P. vestigiata* in Minas Gerais and São Paulo, Brazil; and (3) *P. terrestris* in Mato Grosso, Brazil.

Biology and phenology. *Paryphthimoides* sp. 5 is an abundant and multivoltine species, flying during all year around. An interesting record was made in Diamante do Norte, Paraná, Brazil, when a female (voucher DD 307) was attracted on human saliva by using the Ahrenholz technique (Garcia-Salik *et al.* 2014; L. G. Salik & D. R. Dolibaina, *pers.*

comm.). Some studies have reported this technique as a very effective one to attract males of Hesperiidae and some genera of Nymphalidae, Riodinidae and Pieridae (Lamas & Robbins 1993; Mielke *et al.* 2010; Garcia-Salik *et al.* 2014).

Host plant and immature stages. Unknown.

Type material. Holotype male with the following labels: /Holotypus/ 21-24-IV-1996, Parque Nac[ional] Iguaçú, Paraná, [Brazil], Mielke & Casagrande *leg.*/ DZ 35.862/ Holotypus *Paryphthimoides* sp. 5. T. Zacca, det. 2016/. DZUP.

Allotype female with the following labels: /Allotypus/ 21-24-IV-1996, Parque Nac[ional] Iguaçú, Paraná, [Brazil], Mielke & Casagrande *leg.*/ DZ 35.872/ Allotypus *Paryphthimoides* sp. 5. T. Zacca, det. 2016/. DZUP.

PARATYPES. 59 males, 52 females (14 specimens dissected). BRAZIL – *Mato Grosso*: 2 males, 1886, P. Germain *leg*., ex-Oberthür Coll. Brit. Mus. 1927-3, BMNH(E) 1421706*, BMNH(E) 1421737 (NHMUK), Barra do Bugres, Alto Rio Paraguai, 150 m, 1 male, 26-29.VII.1974, H. & H. D. Ebert *leg*., DZ 28.167 (DZUP), Barra do Garças, Vale dos Sonhos, 1 male, 16.I.1977, ex-coll. Gifford, DZ 28.180 (DZUP), Chapada dos Guimarães, Buriti, 600-800 m, 1 female, 12.II.1967, ex-coll. D'Almeida, DZ 28.193 (DZUP), 700 m, 1 male, 25.I.1968, ex-coll. H. Ebert, DZ 28.194 (DZUP), 1 female, 30.I.1968, DZ 28.172 (DZUP), 1 male, 23.XII.1968, DZ 28.168 (DZUP), 1 male, 16.V.1978, DZ 28.177, Cárceres, 1 female, 14.XI.1984, Buzzi, Mielke, Elias & Casagrande *leg*., DZ 28.178 (DZUP), 1 female, 19.XI.1984, DZ 28.179 (DZUP), Cuiabá, São José da Serra, Serra de São Vicente, 700 m, 1 male, 24.VI.1972, Mielke & Brown *leg*., DZ 28.173 (DZUP), Diamantino, Alto Rio Arinos, Fazenda São João, 300-400 m, 3 males, 3 females, 1-8.VIII.1974, H. & H. D. Ebert *leg*., DZ 28.190, DZ 28.166, DZ 28.188, DZ 28.192, DZ 28.189, DZ 28.174 (DZUP), 1 female, 24.VII.1975, DZ 28.168 (DZUP), 1 male, 1 female, 12.I.1978, Mielke & Furtado *leg*., DZ 28.182, DZ 28.183 (DZUP), 1 male, 15.I.1978, DZ 28.185 (DZUP), 2 females, 19.I.1978, DZ 28.187, DZ 28.191 (DZUP), 1 male, 20.I.1978, DZ 28.181 (DZUP), 1 female, 21.VIII.1978, DZ 28.170 (DZUP), 1 male, 26.VIII.1978, DZ 28.169 (DZUP), 1 male, 1.IX.1978, DZ 28.176 (DZUP), 1 female, 6.IX.1978, DZ 28.175 (DZUP), Nova Xavantina, Bacaba, 1 male, UNIMAT, 17-19.VIII.1997, Mielke *leg*., DZ 35.854 (DZUP); *Goiás*: 1 female, II.1969, ex-coll. H. Ebert, DZ 28.157 (DZUP), 1 male, 13.V.1969, DZ 28.158 (DZUP), 2 females, 31.VIII.1969, DZ 28.154, DZ 28.155 (DZUP), Goiás, 1 male, 25.XI.1979, Gifford *leg*., DZ 28.157 (DZUP), Padre Bernardo, 1 female, 23.X.1978, ex-coll. Gifford, DZ 28.152 (DZUP), Córrego Paciência [Fazenda das Esmeraldas, ca 6 km NE from Goiás]; *Distrito Federal*: Brasília, 1 female, 23.XII.1968, ex-coll. H. Ebert, DZ 28.184 (DZUP), 1 male, 1 female, 13.V.1969, DZ 28.230, DZ 28.231, DZ 28.232 (DZUP), 1 male, 30.VI.1976, Gifford *leg*., DZ 5.266* (DZUP),

1000 m, 1 female, 8.IX.1969, H. Ebert *leg*., DZ 28.161 (DZUP), Brasília Country Club, 1200 m, 1 female, 19.VI.1972, Mielke & Brown *leg*., DZ 28.164* (DZUP), Fazenda Água Limpa, 1 male, 21.XI.1979, Gifford *leg*., DZ 28.163* (DZUP), Parque Recreativo do Gama, 1 male, 31.I.1967, ex-coll. D'Almeida, DZ 28.165 (DZUP), 1 male, 17.VI.1972, Mielke & Brown *leg*., DZ 28.162 (DZUP); *Minas Gerais*: Paracatu, 1 male, 13.IX.1968, ex-coll. H. Ebert, DZ 28.215 (DZUP), 3 males, 5 females, 15.V.1969, DZ 28.223, DZ 28.220, DZ 28.227, DZ 28.218, DZ 28.221, DZ 28.217, DZ 28.219, DZ 28.224 (DZUP), 1 female, 26.V.1969, DZ 28.214 (DZUP), 1 female, 9.IX.1969, DZ 28.222 (DZUP), 1 female, 11.IX.1969, DZ 28.196 (DZUP), 1 male, 16.VI.1972, Mielke & Brown *leg*., DZ 28.197 (DZUP), Paraopeba, 750 m, 2 females, 15.IX.1968, ex-coll. H. Ebert, DZ 28.233, DZ 28.226 (DZUP), 1 male, 18.V.1969, DZ 28.225 (DZUP), 1 female, 28.V.1969, H. Ebert *leg*., DZ 28.216 (DZUP), 3 females, 11.IX.1969, DZ 28.199*, DZ 28.195, DZ 28.202 (DZUP), 2 males, 23.VII.1973, DZ 28.198*, DZ 28.200 (DZUP); Unaí, 3 km W, 1 male, 26.I.1980, ex-coll. Gifford, DZ 28.201 (DZUP); *São Paulo*: Mirandópolis, 1 female, 4.IX.1978, ex-coll. Gifford, DZ 28.206* (DZUP), Pereira Barreto, Estação Ferroviária Noroeste do Brasil, Ilha Seca, 2 females, 3.XI.1938, ex-coll. D'Almeida, DZ 28.209, DZ 28.211 (DZUP), Fazenda Nova Estrela, 300 m, 1 male, 2 females, 3-14.XI.1972, H. Ebert *leg*., DZ 28.210, DZ 28.205, DZ 28.203 (DZUP), 2 males, 1 female, 1.V.1973, DZ 5.290*, DZ 28.207, DZ 28.208 (DZUP), Teodoro Sampaio, Parque Estadual Morro do Diabo, 2 males, 17-19.VIII.1989, Mielke & Casagrande *leg*., DZ 35.857, DZ 35.858 (DZUP), 250-500 m, 4 males, 1 female, 20-23.II.1990, DZ 29.343*, DZ 35.855, DZ 35.856, DZ 29.341*, DZ 29.342* (DZUP), 4 females, 15-18.III.1991, DZ 35.859, DZ 29.340, DZ 29.340, DZ 35.860 (DZUP); *Paraná*: Diamante do Norte, Estação Ecológica do Caiuá, 300 m, 1 female, 23.VI.2011, Dolibaina & Salik *leg*., DD 307, Foz do Iguaçu, 250 m, 3 males, 17.II.1969, Moure & Mielke *leg*., DZ 29.345*, DZ 28.212*, DZ 28.213 (DZUP), Trilha do Poço Preto, 1 male, 24.II.2013, R. R. Greve *leg*., MGCL-LOAN-006 (ZUEC), Parque Nacional do Iguaçu, 6 males, 7 females, 21-24.IV.1996, Mielke & Casagrande *leg*., DZ 35.868, DZ 35.870, DZ 35.871, DZ 35.872 (allotype), DZ 35.873DZ 35.874, DZ 35.876, DZ 35.861, DZ 35.862 (holotype), DZ 35.863, DZ 35.864, DZ 35.865, DZ 35.867 (DZUP), Matelândia, 520 m, 2 males, 10.XI.1998, Mielke & Casagrande *leg*., DZ 35.869, DZ 35.875 (DZUP), Parnavaí, 12 km W from Santo Antônio do Caiuá, 300 m, 1 male, 15.XII.2009, Mielke, Maia, Carneiro & Dolibaina *leg*., DZ 35.866 (DZUP). PARAGUAY – *no specific locality*: 2 males, no data, Perrens *leg.*, Godman-Salvin Coll. 1904-1, BMNH(E) 1421799*, BMNH(E) 1421675 (NHMUK), Paraguari, Cerro Acahay, 4 km y 7 km (cratere) de la ruta, 2 males, 5.IX.2014, M. Benmesbah *leg*. (MB).

Remarks. Based on specimens deposited at NHMUK, D'Abrera (1988) provided a photo of one female as *E.* ?*terrestris* and mentioned its distribution from Southern Brazil to Paraguay. However, this species agrees with *Cissia proba* (Weymer, 1911), and not with

P. terrestris. It occurs the same with females from Óbidos, Pará, Brazil and a male from Trinidad illustrated at the same page; these specimens are in fact a distinct species of *Magneuptychia* recently described (Zacca *et al.*, *in press*.).

Canals (2003) cited and illustrated this species as *Cissia thobei* (Capronnier, 1881), currently a synonym of *Yphthimoides affinis* (Butler, 1867) (see taxonomic comments on *Neonympha thobiei* Capronnier, 1881 in Lamas 2006). The author demonstrated uncertainity about the correct identification on this species, also suggesting that it could be a subspecies of *Cissia myncea* or a new species.

Discussion

Among the published molecular phylogenies of Euptychiina (Murray & Prowell 2005; Peña *et al.* 2006; Wahlberg *et al.* 2009; Peña *et al.* 2010), a few species of *Paryphthimoides* sensu Lamas (2004) has been included in their analysis. Peña *et al.* (2006) sampled *"Paryphthimoides" grimon* and "*Parypthimoides" phronius* (cited as *Paryphthimoides* sp., DNA voucher NW126-7), and their results indicated them as species far distant to each other and closely related to species of *Magneuptychia* Forster, 1964 and *Moneuptychia* Forster, 1964, respectively. In addition to *"P." grimon* and "*P." phronius*, Peña *et al.* (2010) also included *P. poltys* that appears far distant to the other mentioned species. In the present study, *"P." grimon* is removed from *Paryphthimoides* and will be treated under a new genus in a forthcoming paper together with some species currently placed in *Yphthimoides* Forster, 1964 (see Chapter 2). Thus, "*P." phronius* is also removed from *Paryphthimoides* and will be transferred to *Cissia* Doubleday, 1848 in a forthcoming paper (see Chapter 3).

Ten species are recognized herein in *Paryphthimoides* (see Checklist), and are distributed widely in the Neotropical region from Mexico to Argentina (no records from Chile). A recent molecular phylogeny performed by M. Espeland, K. Willmott *et al*. (*in prep.*) also gives support to the hypothesis proposed here, recognizing *Paryphthimoides* monophyletic by including *P. poltys*, *P. terrestris* and *P. brixius*, and excluding the taxa *phronius, eous, argulus, difficilis, grimon, melobosis numeria, numilia, undulata* and *sylvina*. *Paryphthimoides vestigiata*, *P. touloulou* and the new species here described were not sampled in the above study; *phronius* and *eous* are supported and related to *Cissia* (as also corroborated by morphological evidence – see Chapter 3). The remaining species will be treated in a forthcoming paper (see Chapter 2) under new taxonomic arrangments.

So far, *Paryphthymoides* sp.1 and *P. terrestris* are the only species of the genus that occurs in Central America, being the former species restrict to Mexico, and *P. terrestris* from Nicaragua to the forests of northeast Brazil.

Different from the other species of *Paryphthimoides*, the genitalia morphology overlaps in species of the "*terrestris* complex", giving some difficulty to identify and delimitate these species using only genitalic characters. In the other hand, males and females of this complex can be easily distinguished by wing pattern (eg.: ground colour and lines coloration on ventral wings, as well as the size and shape of the ocelli in M_2-M_3 and M_3-CuA_1), suggesting recent divergence. Similar cases have been reported in several other groups of nymphalid butterflies (eg.: Willmott 2003; Penz 2009). Doubtless, DNA barcoding could help to detect more new species in this complex, especially in the Amazonian region.

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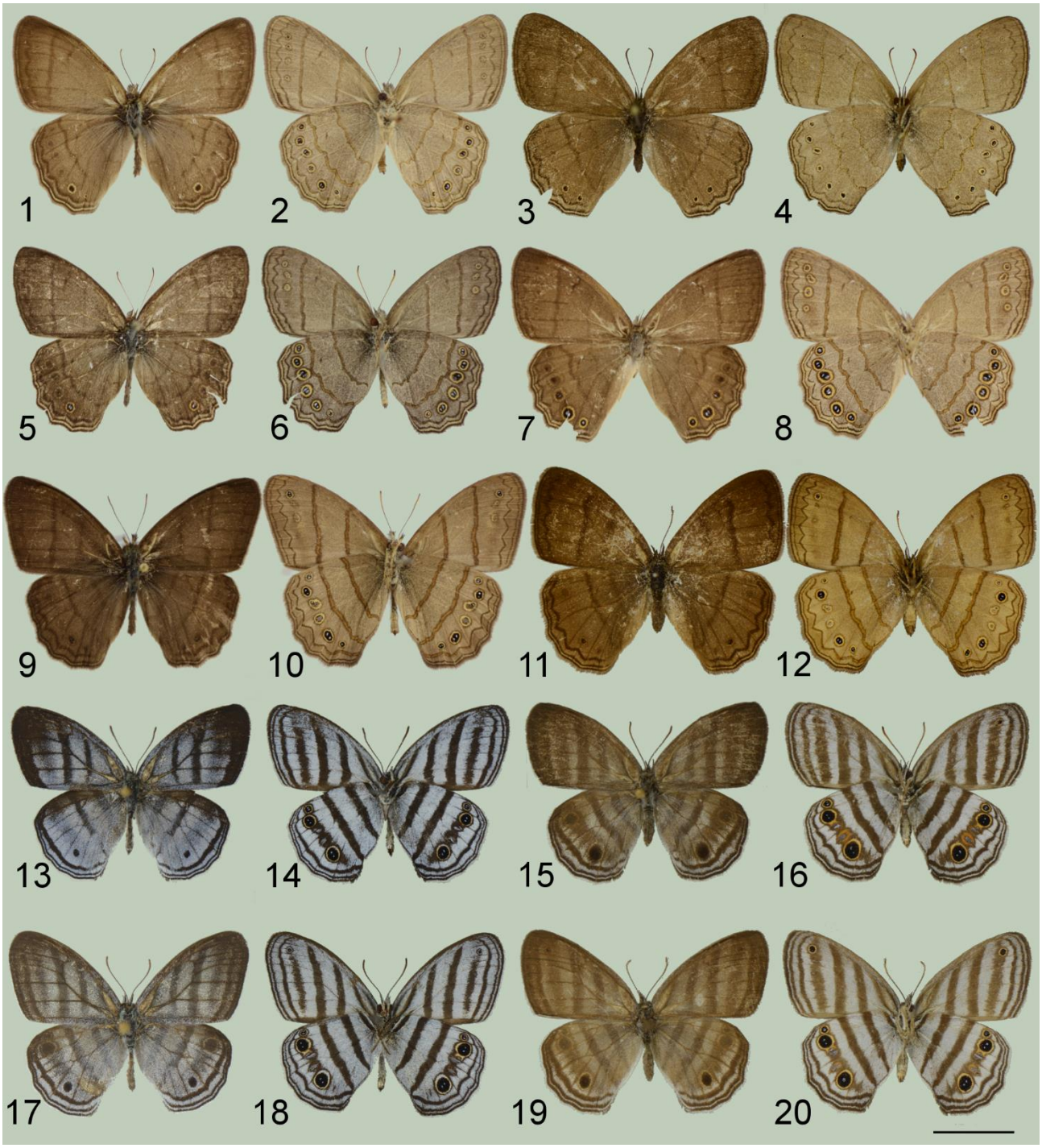
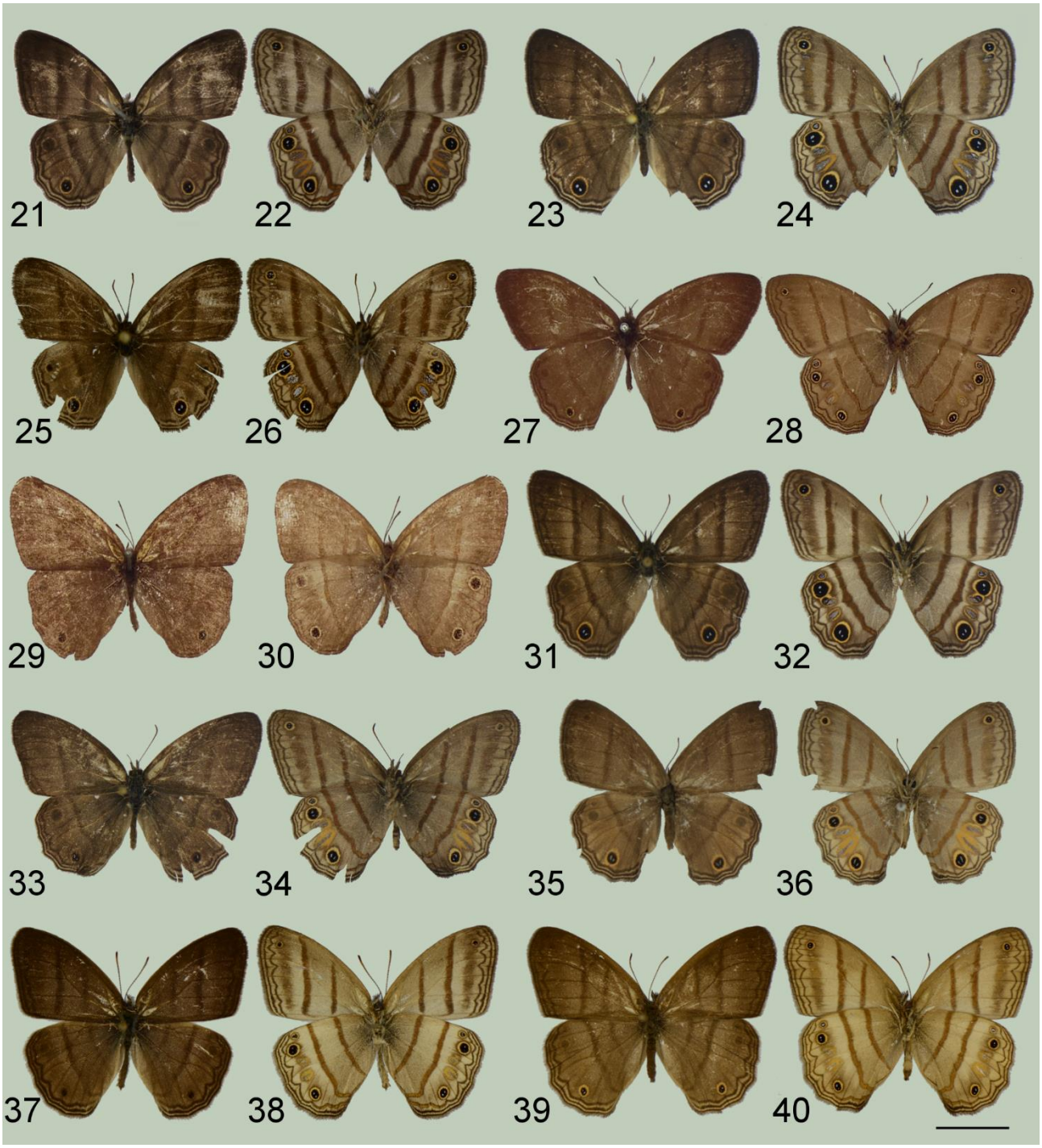
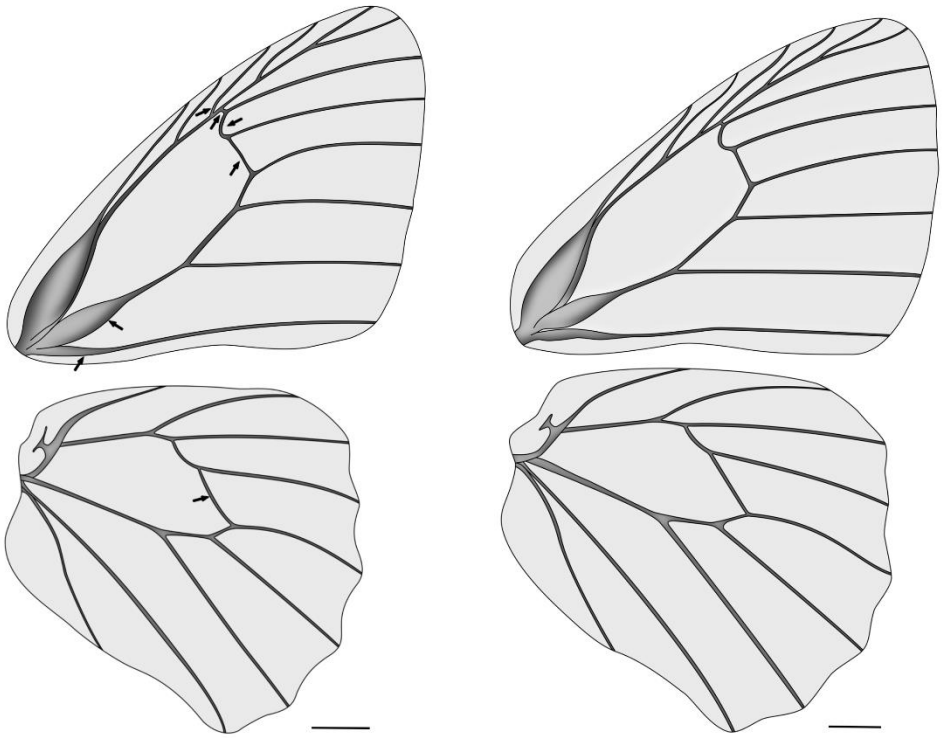


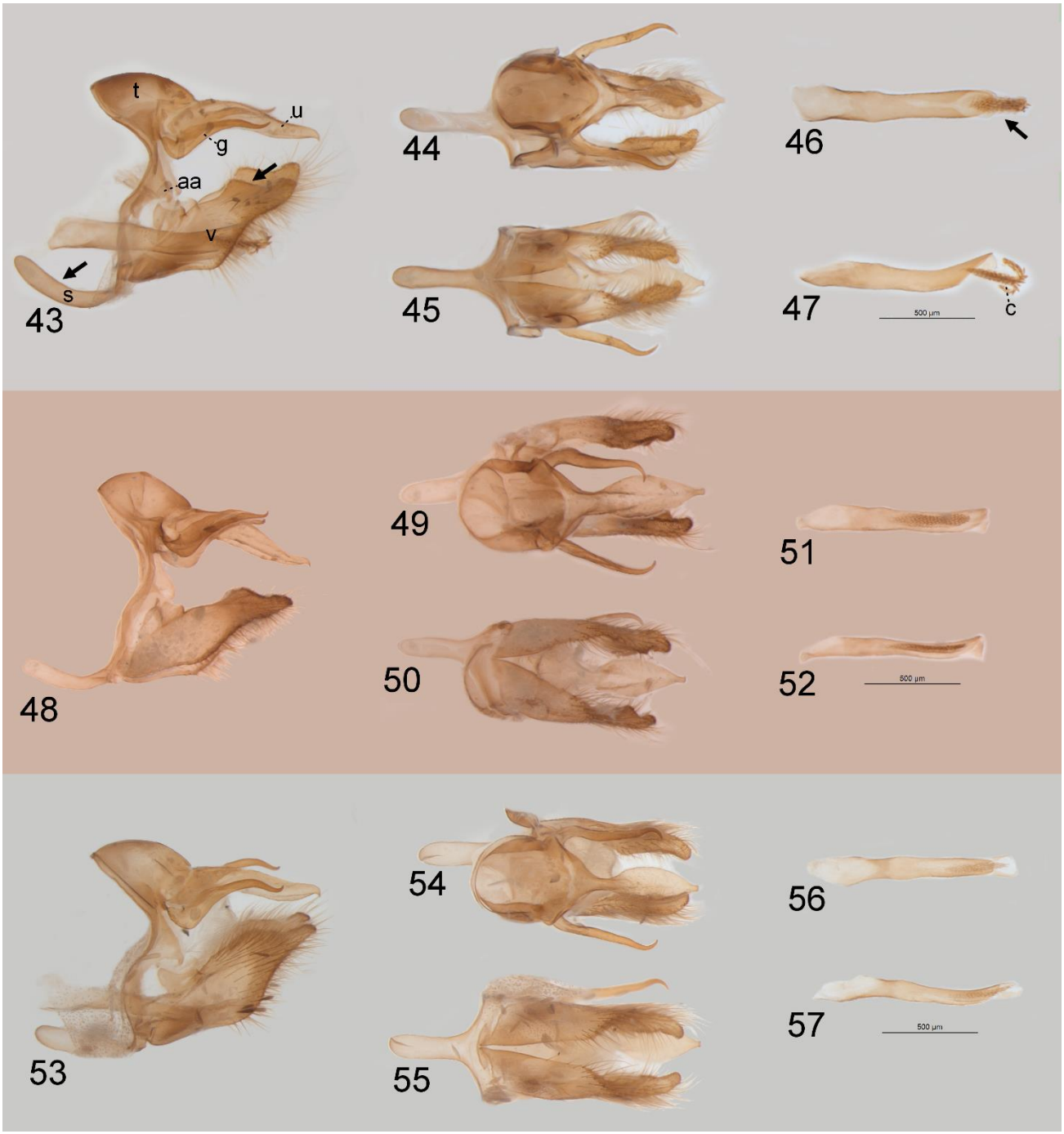
Figures 1-20. Species of *Paryphthimoides*. 1-4. *Paryphthimoides poltys poltys*: 1. Male, dorsal (Paraná, Brazil); 2. Male, ventral; 3. Female, dorsal (Paraná, Brazil); 4. Female, ventral. 5-8. *Paryphthimoides poltys binalinea*: 5. Male, dorsal (Amazonas, Brazil); 6. Male, ventral; 7. Female, dorsal (Pará, Brazil); 8. Female, ventral. 9-12. *Paryphthimoides vestigiata*: 9. Male, dorsal (Minas Gerais, Brazil); 10. Male, ventral; 11. Female, dorsal (Minas Gerais, Brazil); 12. Female, ventral. 13-16. *Paryphthimoides brixius brixius*: 13. Neotype male, dorsal; 14. Neotype male, ventral; 15. Female, dorsal (Madre de Dios, Peru); 16. Female, ventral. 17-20. *Paryphthimoides brixius brixiola*: 17. Male, dorsal (Maranhão, Brazil); 18. Male, ventral; 19. Female, dorsal (Maranhão, Brazil); 20. Female, ventral. Scale = 1 cm.



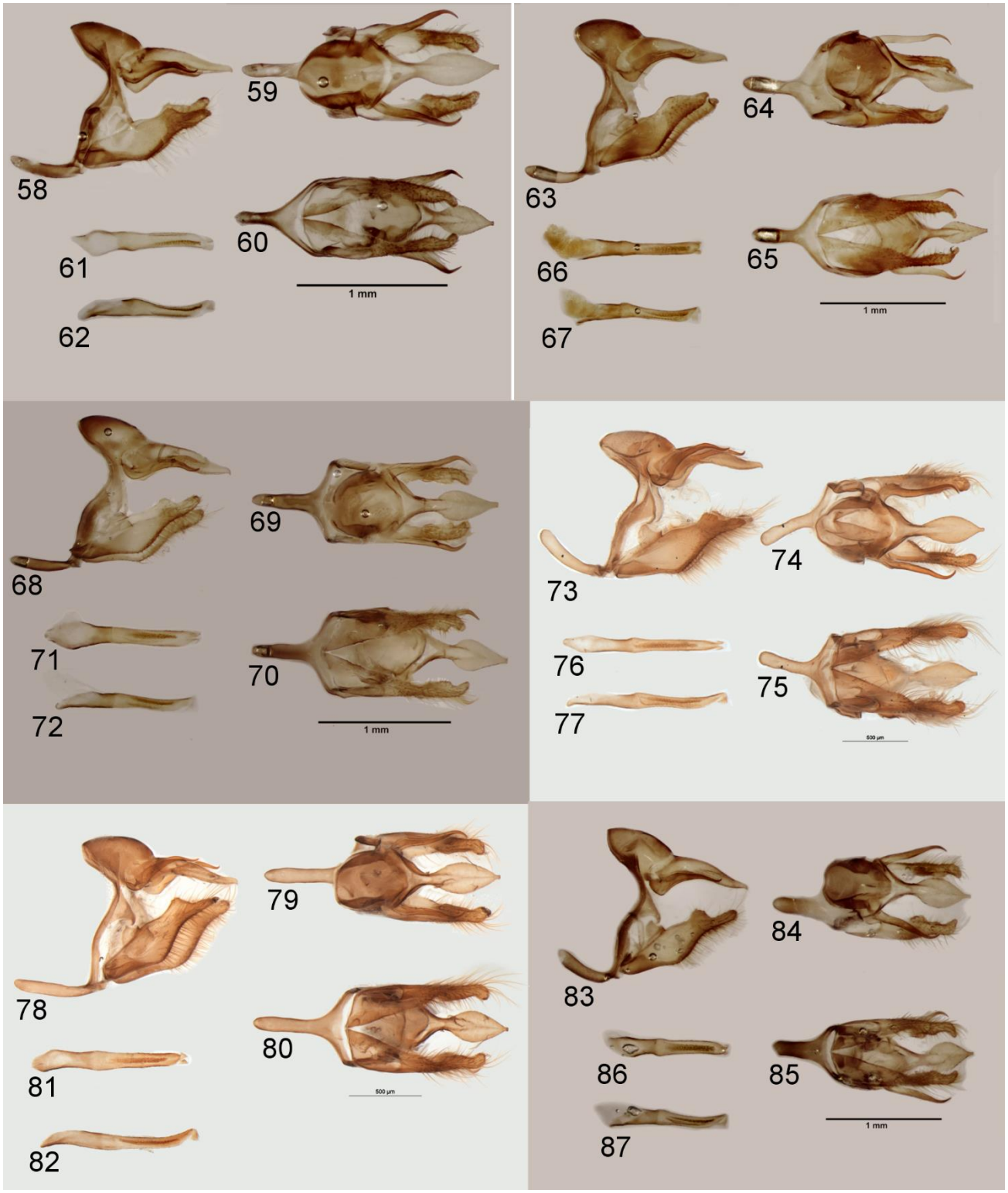
Figures 21-40. Species of *Paryphthimoides* – "*terrestris* group". 21-24. *Paryphthimoides terrestris*: 21. Male, dorsal (Amazonas, Brazil); 22 Male, ventral; 23. Female, dorsal (Amazonas, Brazil); 24. Female, ventral. 25-26. *Paryphthimoides touloulou*: 25. Male, dorsal (French Guiana); 26. Male ventral. 27-28. *Paryphthimoides* sp.1 **sp. n.**: 27. Holotype male, dorsal; 28. Holotype male, ventral. 29-30. *Paryphthimoides* sp.2 **sp. n.**: 29. Holotype male, dorsal; 30. Holotype male, ventral. 31-32. *Paryphthimoides* sp.3 **sp. n.**: 31. Holotype male, dorsal; 32. Holotype male, ventral. 33-36. *Paryphthimoides* sp.4 **sp. n.**: 33. Holotype male, dorsal; 34. Holotype male, ventral; 35. Allotype female, dorsal; 36. Allotype female, ventral. 37-40. *Paryphthimoides* sp.5 **sp. n.**: 37. Holotype male, dorsal; 38. Holotype male, ventral; 39. Allotype female, dorsal; 40. Allotype female, ventral. Scale = 1 cm.



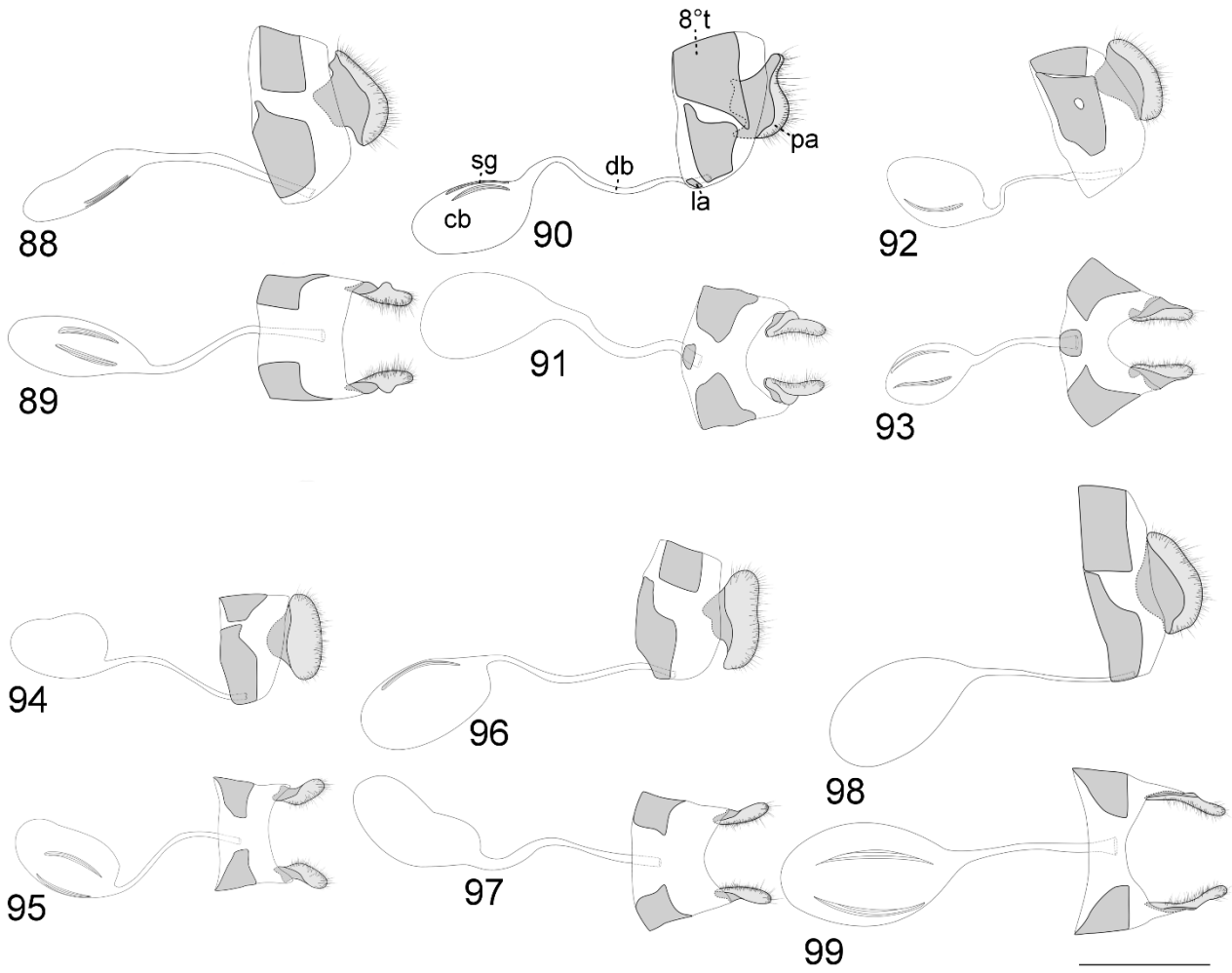
Figures 41-42. Wing venation of *Paryphthimoides poltys poltys*. 41. Male; 42. Female. Scale = 1 cm. Setae indicates remarkable features among the species of the genus.



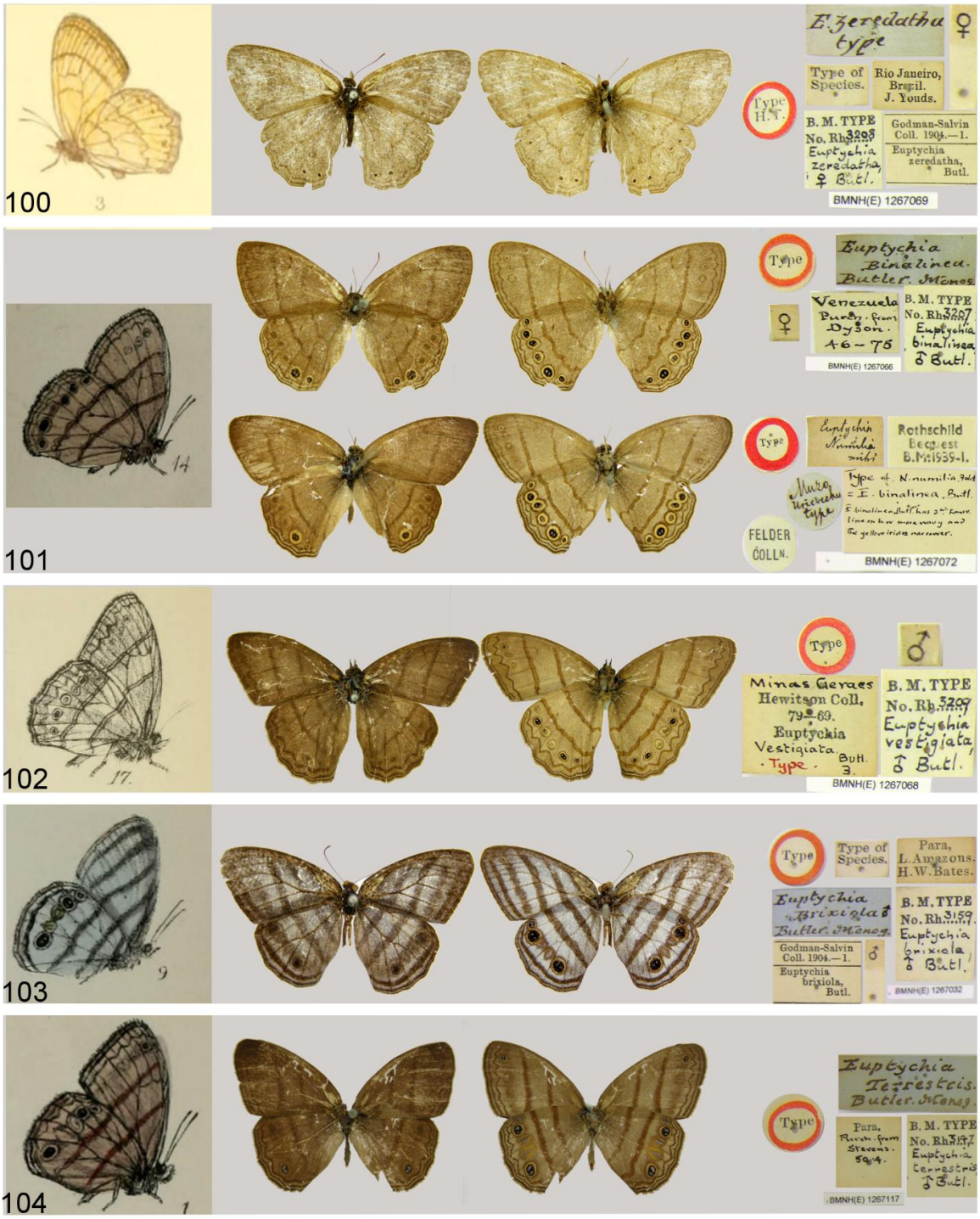
Figures 43-57. Male genitalia of species of *Paryphthimoides*. 43-47. *Paryphthimoides poltys poltys*: 43. Lateral; 44. Dorsal; 45. Ventral; 46. Aedeagus, dorsal; 47. Aedeagus, lateral. 48-52. *Paryphthimoides vestigiata*: 48. Lateral; 49. Dorsal; 50. Ventral; 51. Aedeagus, dorsal; 52. Aedeagus, lateral. 53-57. *Paryphthimoides brixius brixius*: 53. Lateral; 54. Dorsal; 55. Ventral; 56. Aedeagus, dorsal; 57. Aedeagus, lateral. **t**: tegumen; **u**: uncus; **g**: gnathos; **aa**: appendix angularis; **v**: valva; **s**: saccus; **c**: cornuti. Setae indicates remarkable features among the species of the genus.



Figures 58-87. Male genitalia of species of *Paryphthimoides* – "*terrestris* group". 58-62. *Paryphthimoides terrestris*: 58. Lateral; 59. Dorsal; 60. Ventral; 61. Aedeagus, dorsal; 62. Aedeagus, lateral. 63-67. *Paryphthimoides* sp.1 **sp. n.**: 63. Lateral; 64. Dorsal; 65. Ventral; 66. Aedeagus, dorsal; 67. Aedeagus, lateral. 68-72. *Paryphthimoides* sp.2 **sp. nov.**: 68. Lateral; 69. Dorsal; 70. Ventral; 71. Aedeagus, dorsal; 72. Aedeagus, lateral. 73-77. *Paryphthimoides* sp.3 **sp. n.**: 73. Lateral; 74. Dorsal; 75. Ventral; 76. Aedeagus, dorsal; 77. Aedeagus, lateral. 78-82. *Paryphthimoides* sp.4 **sp. n.**: 78. Lateral; 79. Dorsal; 80. Ventral; 81. Aedeagus, dorsal; 82. Aedeagus, lateral. 83-87. *Paryphthimoides* sp.5 **sp. n.**: 83. Lateral; 84. Dorsal; 85. Ventral; 86. Aedeagus, dorsal; 87. Aedeagus, lateral.

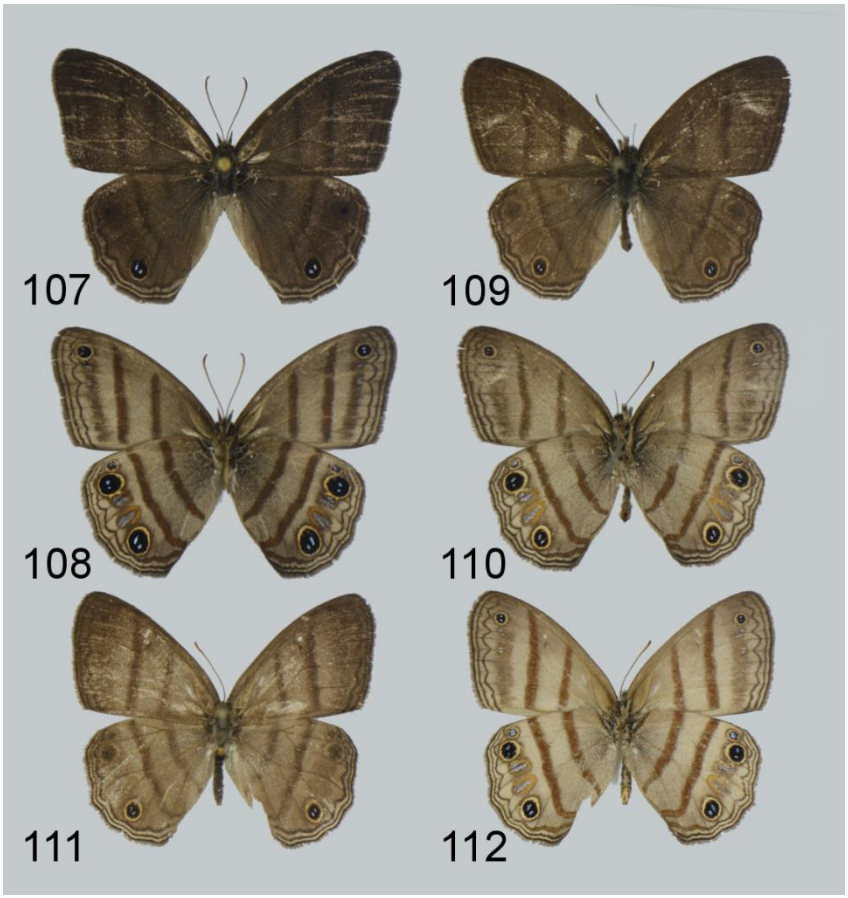


Figures 88-99. Female genitalia of species of *Paryphthimoides*. 88-89. *Paryphthimoides poltys poltys*: 88. Lateral; 89. Ventral. 90-91. *Paryphthimoides vestigiata*: 90. Lateral; 91. Ventral. 92-93. *Paryphthimoides brixius brixius*: 92. Lateral; 93. Ventral. 94-95. *Paryphthimoides terrestris*: 94. Lateral; 95. Ventral. 96-97. *Paryphthimoides sp. 4* **sp. n.**: 96. Lateral; 97. Ventral. 98-99. *Paryphthimoides sp.5* **sp. n.**: 98. Lateral; 99. Ventral. Scale = 1 mm.

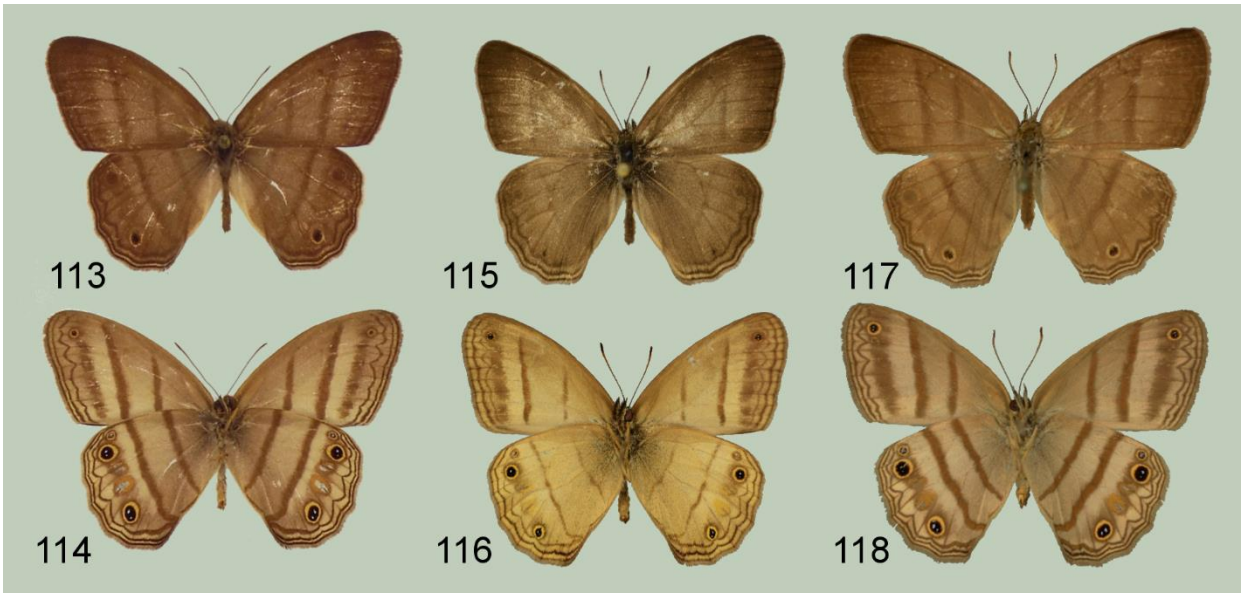


Figures 100-104. Original illustrations and lectotypes of species of *Paryphthimoides* designated in the present study: 100. Illustration of *Euptychia eous* Butler, 1867 misidentified as *Euptychia zeredatha* in Butler (1869) (left) and lectotype male (dorsal and ventral) of *Euptychia zeredatha* with respective labels; 101. Illustration of *Euptychia binalinea* Butler, 1867 (left), lectotype female of *Euptychia binalinea* (top) and lectotype male of *Neonympha numilia* C. Felder & R. Felder, 1867 (bottom) with their respective labels; 102. Illustration of *Euptychia vestigiata* Butler, 1867 (left) and lectotype male with respective labels; 103. Illustration of *Euptychia brixiola* Butler, 1867 (left) and lectotype male with respective labels; 104. Illustration of *Euptychia terrestris* Butler, 1867 (left) and lectotype male with respective labels. [Photos: B. Huertas, Trustees of the Natural History Museum, London].

Figures 105-106. Individuals *in situ*. 105. *Paryphthimoides brixius brixius*. 106. *Paryphthimoides terrestris*, Peru. [Photos: 105. Kim Garwood; 106. David Geale]



Figures 107-112. Wing phenotype variation in *Paryphthimoides terrestris*. 107. Male, dorsal (Amazonas, Brazil); 108. Male, ventral; 109. Male, dorsal (Maranhão, Brazil); 110. Male, ventral; 111. Male, dorsal (Maranhão, Brazil); 112. Male, ventral.



Figures 113-118. Wing phenotype variation in *Paryphthimoides* sp.5. 113. Male, dorsal (Mato Grosso, Brazil); 114. Male, ventral; 115. Male, dorsal (Paraná, Brazil); 116. Male, ventral; 117. Female, dorsal (Minas Gerais, Brazil); 118. Male, ventral.

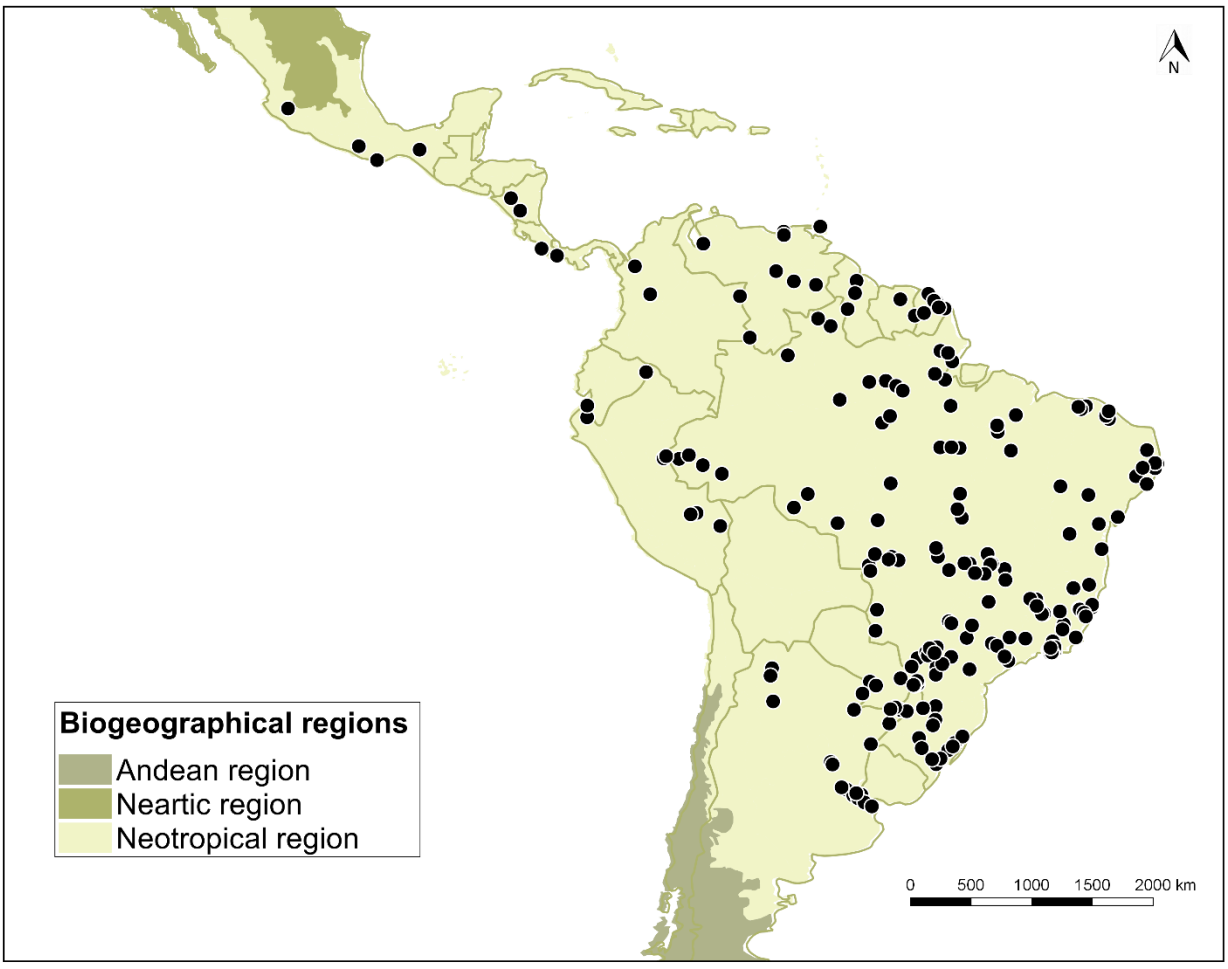


Figure 119. Geographical distribution of genus *Paryphthimoides*.

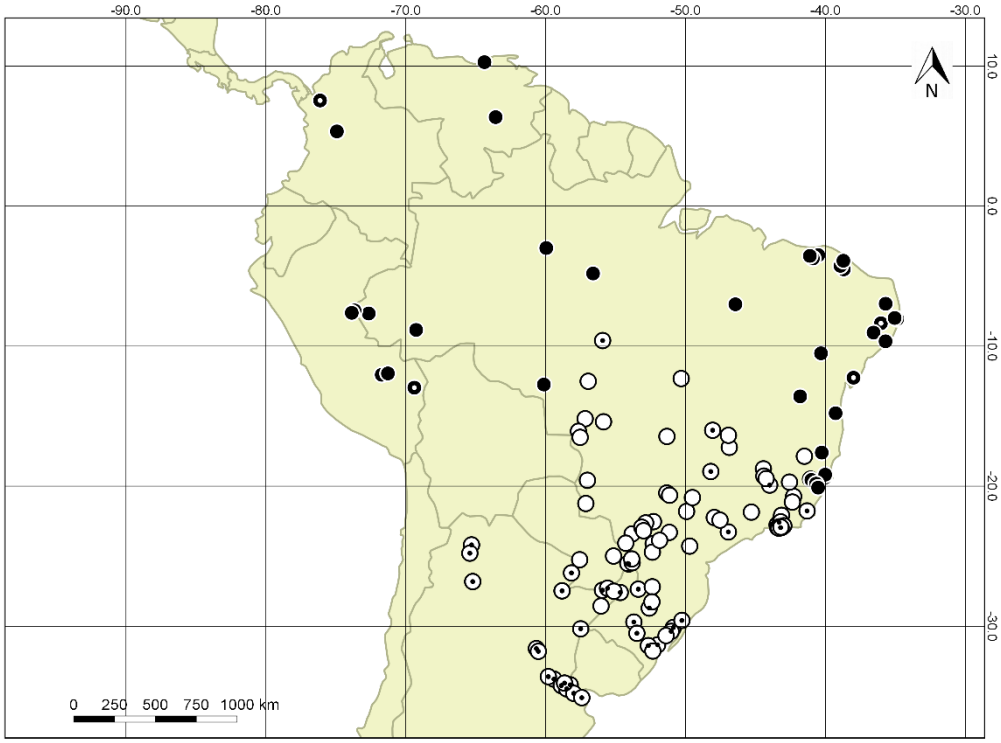


Figure 120. Geographical distribution of *Paryphthimoides poltys poltys* (white circle) and *Paryphthimoides poltys binalinea* (black circle). Reduced dot inside the circle indicates literature records.

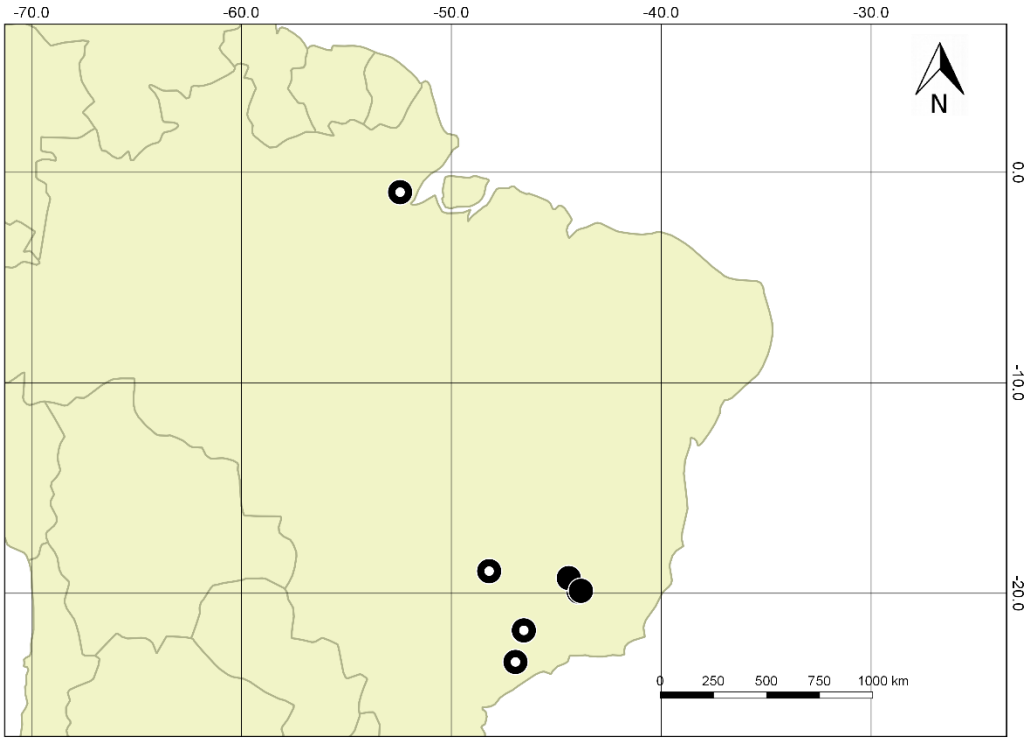


Figure 121. Geographical distribution of *Paryphthimoides vestigiata.* Reduced white dot inside the circle indicates literature records.

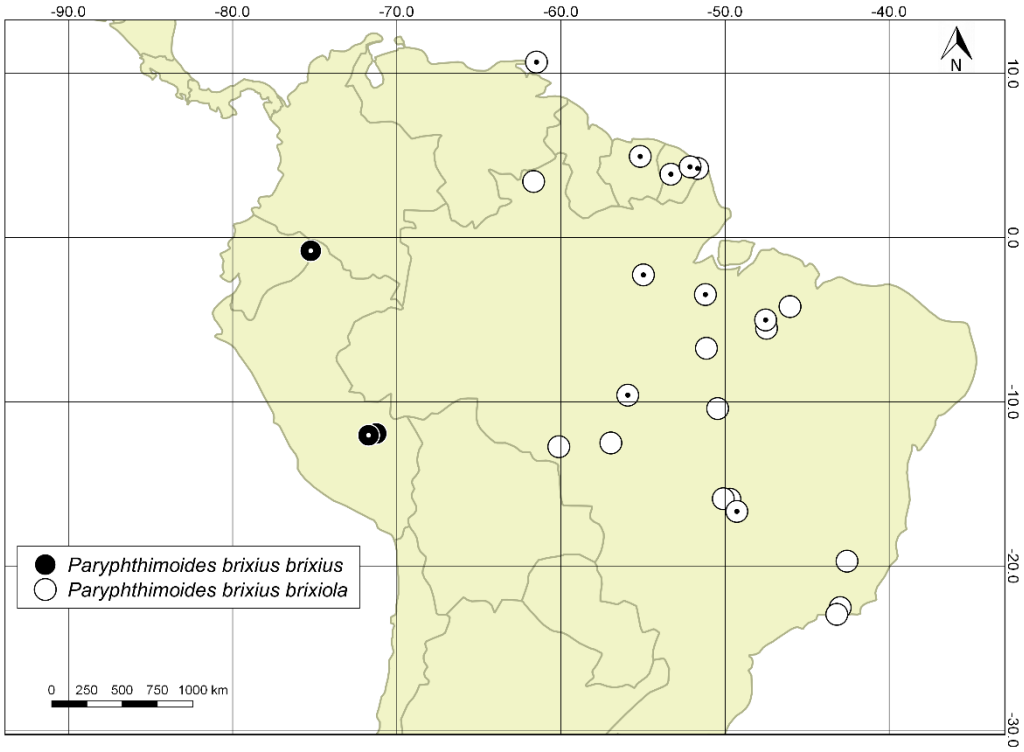


Figure 122. Geographical distribution of *Paryphthimoides brixius brixius* (black circle) and *Paryphthimoides brixius brixiola* (white circle). Reduced dot inside the circle indicates literature records.

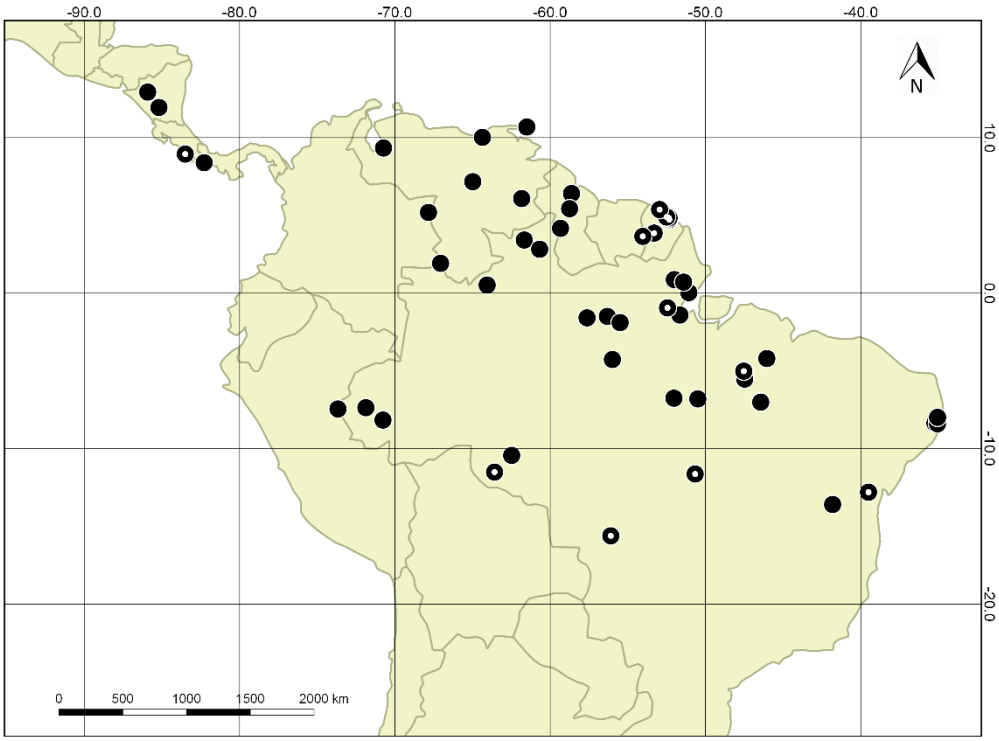


Figure 123. Geographical distribution of *Paryphthimoides terrestris*. Reduced dot inside the circle indicates literature records.

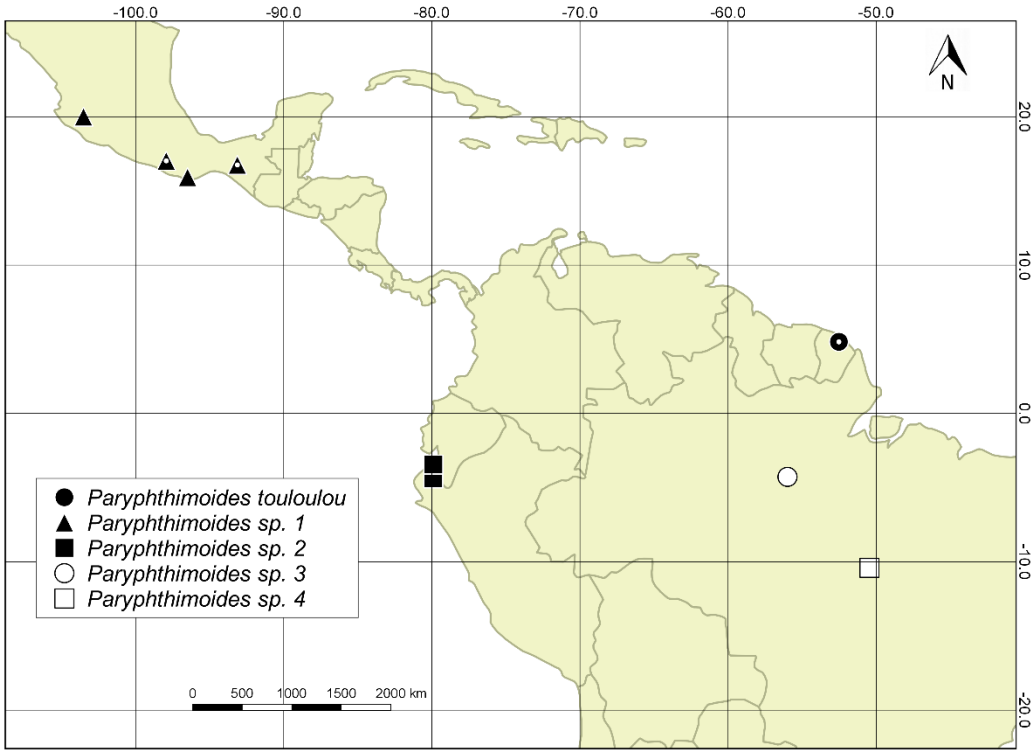


Figure 124. Geographical distribution of *Paryphthimoides touloulou*, *Paryphthimoides* sp.1 **sp. n.**, *Paryphthimoides* sp.2 **sp. n.**, *Paryphthimoides* sp.3 **sp. n.** and *Paryphthimoides* sp.4 **sp. n.**

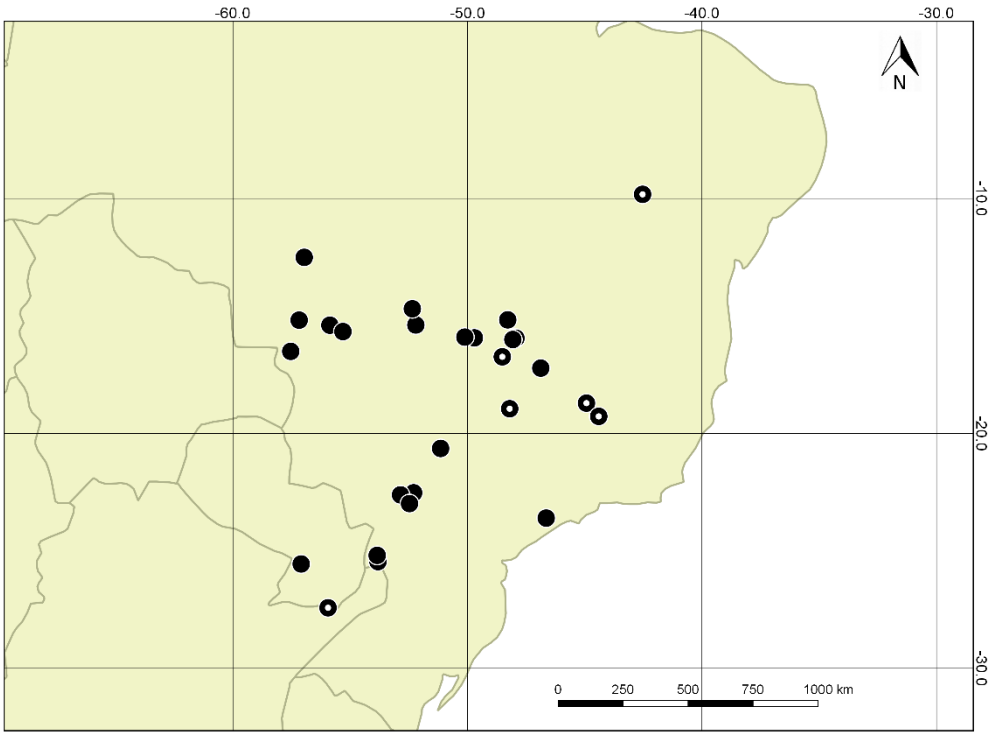


Figure 125. Geographical distribution of *Paryphthimoides* sp.5 **sp. n.**. Reduced white dot inside the circle indicates literature records.

New taxonomic arrangements to the species removed out *Paryphthimoides* Forster, 1964, with the description of three new genera and two new taxa (Lepidoptera: Nymphalidae, Satyrinae)

Abstract. In order to contribute to the systematics of Euptychiina, several taxonomic rearrangements are proposed in the present study, mainly based on morphological evidence. Three new genera are described, *Genus A* Zacca, Casagrande & Mielke **gen. n.**, *Genus B* Zacca, Casagrande & Mielke **gen. n.** and *Genus C* Zacca, Casagrande & Mielke **gen. n.** *Genus A* comprises *Genus A argulus argulus* (Godart, [1824]) **comb. n.** (type-species), *Genus A argulus* ssp.1 Zacca, Casagrande & Mielke **ssp. n.**, *Genus A difficilis* (Forster, 1964) **comb. n.**, *Genus A numeria* (C. Felder & R. Felder, 1867) **comb. n.** and a new species, *Genus A* sp.1 Zacca, Casagrande & Mielke **sp. n.**, from Midwest Brazil. *Genus B* comprises *Genus B grimon* (Godart, [1824]) **comb. n.** (type-species), while *Genus C* comprises *Genus C flavofascia* (Zacca & Siewert, 2014) (type-species). *Euptychia undulata* Butler, 1867 is transferred to *Hermeuptychia* Forster, 1964. *Nenonympha melobosis* Capronnier, 1874 is transferred to *Taydebis* Freitas, 2003, and *Taydebis peculiaris* (Butler, 1867) is proposed as new synonym of *T. melobosis*. Three neotypes are designated for *Satyrus argulus* Godart, [1824], *Satyrus grimon* Godart, [1824] and *Neonympha melobosis* Capronnier, 1874. Lectotypes are designated for *Euptychia huebneri* Butler, 1867, *Euptychia ambigua* Butler, 1867, *Euptychia undulata*, *Neonympha numeria* C. Felder & R. Felder, 1867 and *Euptychia peculiaris* Butler, 1867. A detailed analysis of female genitalic structures of abovementioned taxa are herein presented for the first time (except for those species with unknown females).

Keywords. Euptychiina, *Hermeuptychia*, *Magneuptychia*, Neotropical region, *Paryphthimoides*, *Taydebis*.

Introduction

After the revision of *Paryphthimoides* Forster, 1964 (see Chapter 1), it was observed that the following seven species have failed to meet the key characters for the genus:

Euptychia undulata Butler, 1867, *Neonympha melobosis* Capronnier, 1874, *Neonympha numeria* C. Felder & R. Felder, 1967, *Neonympha sylvina* C. Felder & R. Felder, 1867, *Paryphthimoides difficilis* Forster, 1964, *Satyrus argulus* Godart, [1824] and *Satyrus grimon* Godart, [1824]. The present paper continues the taxonomic revision of the removed species and describes three new genera with discussion of their systematic position in Euptychiina. *Neonympha sylvina* will be treated in a forthcoming paper describing a new genus to allocate this species together with *Magneuptychia alcinoe* (C. Felder & R. Felder, 1867), *M. mimas* (Godman, 1905) and *M. nebulosa* (Butler, 1867) (M. Benmesbah *et al.*, in prep.).

Material and Methods

There were examined 254 specimens, including all available types, from eight public and private collections. The following acronyms are used throughout the text, and the collections not personally examined are marked with an asterisk:

DZUP	Coleção Pe. Jesus de Santiago Moure, Universidade Federal do Paraná, Paraná, Brazil
MNHN	Muséum national d'Histoire naturelle, Paris, France*
NHMUK	Natural History Museum, London, United Kingdom
OM	Olaf H. H. Mielke collection, Paraná, Brazil
RBINS	Royal Belgian Institute of Natural Sciences, Brussels, Belgium*
ZSMS	Zoologische Staatssammlung München, Munich, Germany*
ZUEC	Museu de Zoologia da Universidade Estadual de Campinas, São Paulo, Brazil
ZUEC-AVLF	André V. L. Freitas collection, Museu de Zoologia da Universidade Estadual de Campinas, São Paulo, Brazil

The repository of the photos of all types known taken by Gerardo Lamas (Museo de Historia Natural Universidad Nacional Mayor de San Marcos, Peru) available in Butterflies of America website (Warren *et al.* 2016) was consulted. For further methodological and terminology information, see Chapter 1.

Results

Satyrus argulus, *N. numeria* and *P. difficilis*, previously treated in *Paryphthimoides* by Lamas (2004), shares several morphological characters (eg.: venation and male and female genitalia) that allows proposing a new genus to them, *Genus A* Zacca, Casagrande & Mielke, **gen. n.**. Additionally, a new subspecies of *Genus A argulus* it herein described, *Genus A argulus* ssp.1 Zacca, Casagrande & Mielke, **ssp.n.** *Satyrus grimon* is morphologically distinct to *Genus A*, *Paryphthimoides* and other Euptychiina genera, allowing the description of *Genus B* Zacca, Casagrande & Mielke, **gen. n.** to allocate this species. Although suggested as a member of *Paryphthimoides* by Kaminski *et al*. (2015) due the ecological preferences, *Magneuptychia flavofascia* Zacca & Siewert, 2014 is morphologically distinct to *Paryphthimoides* and other Euptychiina genera, allowing the description of *Genus* C Zacca, Casagrande & Mielke, **gen. n.** to allocate this species. Based on morphological evidence, *Euptychia undulata* and *Neonympha melobosis* are transferred to *Hermeuptychia* Forster, 1964 and *Taydebis* Freitas, 2003, respectively.

Genus A Zacca, Casagrande & Mielke gen. n.

Type species. *Satyrus argulus* Godart, [1824].

Diagnosis and description. Similar to the species of *Paryphthimoides*, species of *Genus A* have hairy eyes, but can be distinguished from that by (1) DHW without ocelli; (2) VHW with five ocelli from Rs to CuA_2, the first, second and the fifth are all ovoid, with a well-defined black ocellar spot surrounded by a yellowish ocellar ring and two small silvery pupils, the third and fourth ocelli are larger than the others, and the ocellar spots are faded; (3) appendix angularis developed; (4) elongated and rectangular valva with apex slightly serrated; (5) aedeagus with an inner sclerotized triangular projection in lateral view, which is bipartite in ventral view; (6) cornuti absent; (7) lamella antevaginalis sclerotized with a wrinkled appearance.

Discussion. *Genus A* currently comprises four species, three of them previously treated in *Paryphthimoides*: *Genus A argulus*, *Genus A difficilis* and *Genus A numeria* (Lamas 2004). Although these species were never sampled and evaluated in molecular phylogenies of Euptychiina (Murray & Prowell 2005; Peña *et al.* 2006, 2010; Wahlberg

et al. 2009), their genitalic morphologies clearly indicates a concise group characterized by the characters listed above. Ongoing molecular phylogeny using both mitochondrial and nuclear genes (E. P. Barbosa *et al*., *in prep*.) also recover *Genus A* monophyletic with high support (100), being sister to a clade composed by species of *Paryphthimoides* and *Magneuptychia*.

Checklist of *Genus A*

Genus A Zacca, Casagrande & Mielke **gen. n.**

Genus A argulus (Godart, [1824] **comb. n.**

Genus A argulus argulus (Godart, [1824]) **comb. n.**

Genus A argulus ssp.1 Zacca, Casagrande & Mielke **ssp. n.**

Genus A difficilis (Forster, 1964) **comb. n.**

Genus A numeria (C. Felder & R. Felder, 1867) **comb. n.**

Euptychia ambigua Butler, 1867

Euptychia historie Weymer, 1911 [nom. nud.]

Genus A sp.1 Zacca, Casagrande & Mielke **sp. n.**

***Genus A argulus* (Godart, [1824]) comb. n.**

Diagnosis. *Genus A argulus* is the only species in *Genus A* with submedian and median lines on both VFW and VHW wider than the submarginal and marginal lines (while they have the same width in the other species of the genus). Furthermore, the outer margin of the HW is crenulated, and the ocelli are all well-marked and developed compared to the other species of *Genus A.*

***Genus A argulus argulus* (Godart, [1824]) comb. n.** (Figs 1-4, 21-22, 23-27, 43-44, 90-91)

Papilio argante Cramer, 1779: 19, pl. 204, figs C, D; syntypes: Surinam [preocc. Fabricius, 1775].

Megisto argante; Hübner, [1819]: 54.

Satyrus argulus Godart, [1824]: 463, 488; syntype: Suriname. Neotype here designated: Brazil, Pará, Santa Bárbara do Pará; DZUP.

Euptychia argante; Westwood, 1851 *in* Doubleday: 374. – Butler, 1867: 472. – Butler, 1868: 21. – Butler, 1869: 13; **syn.** *perfuscata*. – Kirby, 1871: 49. – Butler, 1877: 118. – Sharpe, 1890: 568. – Weymer, 1911: 202. – Gaede, 1931: 438.

Euptychia huebneri Butler, 1867: 473; syntypes: Brazil, Pará. Lectotype here designated: Brazil, Pará; NHMUK. – Sharpe, 1890: 568.

Paryphthimoides argulus; Lamas, 2004: 221. – Barlow *et al*., 2008: 1099, 1102. – Brévignon, 2008: 79, figs 61a-61c (male: adult, genitalia).

Diagnosis. This subspecies differs from *Genus A argulus* ssp.1 **ssp.n.** by its darker ground colour and reduced ocelli in VW (well-developed in *Genus A argulus* ssp.1 **ssp.n.**).

Male genitalia (Figs 23-27). Tegumen convex in dorsal view, laterally subtriangular; uncus slightly sinuous, about 2/3 length of tegumen, dorsally ovoid, apex curved downwards and truncated in dorsal view; gnathos sinuous in lateral view, 2/3 length of uncus, larger at base and tapering at apex, combination of ventral arms of tegumen and dorsal arms of saccus slightly sinuous; appendix angularis developed; anterior projection of saccus developed, cylindrical, and smaller than gnathos; fultura inferior present; fultura superior absent; valva elongated and rectangular covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa developed and sub-squared, dorsal margin sinuous with apical third slightly serrated, ventral margin slightly projected at median region, apex pointed and slightly serrated; aedeagus straight, shorter than valva, anterior region oblong, posterior region about two times longer than anterior region, distal margin dorsally truncated, with an inner sclerotized triangular projection in lateral view, which is bipartite in ventral view, distal opening ventral almost same length as proximal opening; cornuti absent.

Female genitalia (Figs 43-44). 8th tergite rectangular; papilla analis somewhat triangle, with a reduced ventral projection and covered by long hairy-like setae at the distal region, apophysis posterior reduced; lamella antevaginalis with a wrinkled appearance, ovoid and with lateral expansion at apical third in ventral view; lamella postvaginalis absent; ductus

bursae membranous; corpus bursae about same length as ductus bursae, with paired signa ventrally.

Variation. Generally, females are slightly larger (FW length: 21-22 mm) than males (FW length: 20-21 mm; NT: 20 mm). A very small incomplete ocellus can be present in CuA_2-2A on VHW, and the pupils of the ocellus in Rs-M_1 can be very close to each other given an impression of a sole pupil.

Distribution. This subspecies is restricted to South America, being found in Guiana (Essequibo), Suriname (Berg en Daal), French Guiana (Cayenne) and Brazil (Amazonas, Pará and Maranhão) (Fig. 91). Based on labels data, this species occurs in altitudes up to 150 m.

Biology and phenology. This species flies between February and July. Occurs in secondary forests, but is also abundantly attracted by bait fruit in *Eucalyptus* plantation forests (Barlow *et al.* 2008; Brévignon, 2008).

Hostplant and immature stages. Unknown.

Type material, neotype and lectotype designations, and taxonomic history. *Satyrus argulus* Godart, [1824] was described based on an unstated number of specimens from Suriname. The description of this species is vague, not precisely defining *S. argulus*, as generally occurs to many other Euptychiina species described by J. B. Godart. However, Godart points out that the specimen illustrated in Cramer (1779: pl. 204, figs C, D) as *Papilio argante*, a preoccupied name by the pierid *Papilio argante* Fabricius, 1775 (currently *Phoebis argante*), in fact correspond to his *Satyrus argulus*. The syntypes of *S. argulus* were not found at MNHN (O. H. H. Mielke, A. V. L. Freitas, R. Rougerie, *pers. comm.*), neither at NHMUK or at Royal Museum Edinburgh, Scotland, where Godart's are deposited (see Grimshaw 1897). Considering that knowing well the identity of this species is crucial to clarify the taxonomy and systematic of this group of Euptychiina, because its phenotype resembles others species of this subtribe, herein is designated a neotype to *Satyrus argulus*. This neotype (Figs 1-2) agrees completely with Godart's original description and Cramer's illustration. Although five specimens from Suriname were found in NHMUK, it was better to choose a specimen recently collected as the neotype of *S. argulus* to facilitate DNA extraction and sequence to future phylogenetic studies. Thus, the neotype herein designated is from an area (Pará, Brazil) that shares

similar vegetacional composition with Suriname; it has the following labels: /Neotypus/ 2-3-II-2010 Sta [Santa] Barbara do Pará, Pará, Carneiro, Dolibaina, Dias & Moreira *leg.*/ DZ 35.230/ Neotypus *Satyrus argulus* Godart, [1824]. T. Zacca, det. 2016/. DZUP.

Euptychia huebneri Butler, 1867 was described based on an unstated number of specimens from Pará, Brazil. Two syntypes of *E. huebneri*, one male and one female, were found at NHMUK collection. The male specimen is herein designated as the lectotype of *Euptychia huebneri* to fix the identity of the name, and it has the following labels: /Type H. T./ Type of species/ Para, L.[ower] Amazons, H. W. Bates/ B. M. Type No Rh 3220 *Euptychia hubneri* [sic] ♂ Butl[er]./ Godman-Salvin Coll. 1904. – 1. *Euptychia hubneri* [sic] Butl[er]./ *huebneri* [handwritten]/ *Euptychia huebneri* Butler Monog[raph] [handwritten]/ BMNH(E) 1204751/; and two others will be added later: /Lectotypus/ Lectotypus *Euptychia huebneri* Butler, 1867. T. Zacca, det. 2016/ NHMUK. The last two labels will be sent to the curator later.

Remarks. Hübner (1819) treated *Satyrus argulus* in *Megisto* Hübner, [1819] together with *M. cymela* (Cramer, 1777), *M. eurydice* (Fabricius, 1775) (currently a synonym of *M. cymela*) and *M. acmenis* (Hübner, 1823) (currently in *Yphthimoides* Forster, 1964), however this species differs in several morphological aspects to *Megisto*, such as the hairy eyes (glabrous in *Megisto*), HW with crenulated outer margin (not crenulated in *Megisto*) and some genitalic characters (eg.: developed appendix angularis, shape of valva and wrinkled lamella antevaginalis – see illustrations of genitalia of *Megisto* in Miller (1976) for comparison). Butler (1869) synonymized *Euptychia perfuscata* Butler, 1868 (currently in *Yphthimoides*) with *E. argante* by Butler (1869). Cardé *et al*. (1970) did not examine *E. perfuscata*, and Lee D. Miller (*in litt.* in Cardé *et al.* 1970) suggest that this species should be treated close to *Satyrus grimon*. Lamas (2004) treated it as *Yphthimoides maepius perfuscata* (Butler, 1868), and correctly synonymized *E. huebneri* to *Paryphthimoides argulus*.

Examined material. 12 males, 18 females (4 specimens dissected). GUIANA – *no specific locality*: 1 male, 2 females, no date, Parish *leg*., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1422121, BMNH(E) 1422128, BMNH(E) 1422345 (NHMUK); *Essequibo*: Demerara river, 2 males, no date, Bates *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1422158, BMNH(E) 1422189 (NHMUK). SURINAME – *no specific locality*: 1 male, no date, BMNH(E) 1422127 (NHMUK), 3 females, ex-coll. Fruhstorfer, BMNH(E) 1422159, BMNH(E) 1422097, BMNH(E) 1422035 (NHMUK); *Berg en Daal:* 1 female, IV.1892, C. W. Ellacombe *leg*., Godman-Salvin

Coll. 1904-1, BMNH(E) 1422066 (NHMUK). BRAZIL – *Amazonas*: Barcelos, Rio Aracá, Foz do Rio Curuduri, 0°05'50"S 63°17'22"W, 1 male, 15-19.VI.2010, Mielke & Casagrande *leg*., DZ 22.288*(DZUP); *Pará*: no specific locality, 1 male, no date, Hewitson coll. 79-69, BMNH(E) 1422283 (NHMUK), 1 male, 1 female, no date, H. W. Bates *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1422252, BMNH(E) 1422067 (NHMUK), Belém, Utinga, 3 females, 25.XI.1959, H. Ebert *leg*., DZ 35.180, DZ 35.220, DZ 35.270 (DZUP), Santa Bárbara do Pará, 3 males, 4 females, 2-3.II.2010, Carneiro, Dolibaina, Dias & Moreira *leg*., DZ 33.894*, DZ 33.895*, DZ 33.896*, DZ 35.133, DZ 35.200, DZ 35.230, DZ 35.240 (DZUP), Santarém, 2 males, 2 females, no date, H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1422314, BMNH(E) 1422221, BMNH(E) 1422190, BMNH(E) 1422098 (NHMUK); *Maranhão*: Imperatriz, 2 females, 17.VII.1974, Exc. Dept. Zoologia, DZ 34.234, DZ 34.524 (DZUP).

***Genus A argulus* ssp.1** Zacca, Casagrande & Mielke **ssp. n.** (Figs 5-8, 91)

Yphthimoides argyrospila (Butler, 1867) [misidentification]; Mielke & Casagrande, 1992: 180. – Mielke & Casagrande, 1998: 469, appendix 6.

Diagnosis. This subspecies differs to *Genus A argulus argulus* by the paler VW and well-developed ventral ocelli in both wings.

Variation. Females are slightly larger (FW length: 21-23 mm; AT: 21 mm) than males (FW length: 18-20 mm; HT: 20 mm). A tinny incomplete ocellus can be present in CuA_2-2A on VHW, and the pupils of the ocellus in Rs-M_1 can be very close to each other given an impression of only one pupil.

Distribution. This subspecies is restricted to South America, being only known to Bolivar, Venezuela and Roraima, Brazil (Fig. 91). It is recorded in Amazonian forests and areas of dry savannah, in altitudes between 100-1000 m, being more abundant than *Genus A argulus argulus*.

Biology and phenology. Based on labels data, this species flies during all year round.

Hostplant and immature stages. Unknown.

Type material. Holotype male with the following labels: /Holotypus/ 23-28.II.1988, [3.416 -61.666], Ilha de Maracá, Alto Alegre, RR [Roraima], Mielke & Casagrande *leg*./ *Yphthimoides argyrospila* (Butler, 1867), Mielke & Casagrande det. 1989/ DZ 25.626/

Genus A argulus ssp. n. Zacca, Casagrande & Mielke det. 2016/ DZUP. Allotype female with the following labels: /Allotypus/ 23-28.II.1988, [3.416 -61.666], Ilha de Maracá, Alto Alegre, RR [Roraima], Mielke & Casagrande *leg*./ *Yphthimoides argyrospila* (Butler, 1867), Mielke & Casagrande det. 1989/ DZ 25.666/ *Genus A argulus* ssp. n. Zacca, Casagrande & Mielke det. 2016/ DZUP.

PARATYPES – 8 males, 7 females (3 specimens dissected). VENEZUELA – *Bolivar*: Santa Elena do Uairen, 850 m, 1 female, 18.VII.2009, Mielke & Casagrande *leg*., DZ 33.897* (DZUP). BRAZIL – *Roraima*: Alto Alegre, Ilha do Maracá, 2 males, 24-31.VIII.1987, Mielke & Casagrande *leg*., DZ 35.260, DZ 5.545* (DZUP), 5 males, 4 females, 23-28.II.1988, DZ 35.143, DZ 25.616, DZ 25.646, DZ 25.676, DZ 25.706, DZ 25.686, DZ 25.696 (DZUP), Serra dos Surucucus, 1 female, 16.XI.1979, Gifford *leg*., DZ 25.656 (DZUP), Amajari, Tepequén, 620 m, 1 female, 14-16.VII.2009, Mielke & Casagrande *leg*., DZ 35.210 (DZUP), Pacaraima, 800 m, 2 males, 1 female, 28-30.V.1988, Mielke *leg*., DZ 35.190, DZ 35.250, DZ 5.544* (DZUP).

***Genus A difficilis* (Forster, 1964) comb. n.** (Figs 9-12, 28-32, 45-46, 90, 92)

Paryphthimoides difficilis Forster, 1964: 107, fig. 108 (male genitalia), pl. 30, figs 11-12 (male); holotype: Rio Yacuma, Santa Rosa, Bolivia; ZSM. – Lamas 2004: 221.

Diagnosis. Among the species of *Genus A, Genus A difficilis* is most phenotypically similar to *Genus A numeria*, being differentiated by the well-crenulated median line on both VW, lighter flecked scales all over the ground colour in both VW (this scales are densely concentrated between the marginal line and the outer margin in *Genus A numeria*), aedeagus shorter than the valva with anterior region rounded (the same length and with anterior region projected in *Genus A numeria*), papilla analis with developed apophysis posterior (absent in *Genus A numeria*) and corpus bursae longer than the ductus bursae (the same length in *Genus A numeria*). Wings elements of *Genus A difficilis* resembles to some species of the "*Hermeuptychia hermes* complex" (see Seraphim *et al.* 2013), but can be distinguished by the absence of an androconial patch on DFW and a dark line in the lower disco cellular vein in both VW (both present in the "*H. hermes*

complex"), submedian, median and marginal lines crenulated in VHW, as well as the outer margin (straight in the "*H. hermes* complex").

Male genitalia (Figs 28-32). Tegumen convex in dorsal view, laterally subtriangular; uncus slightly sinuous, about 2/3 length of tegumen, dorsally elliptical, apex curved downwards and truncated in dorsal view; gnathos sinuous in lateral view, 2/3 length of uncus, larger at base and tapering at apex, combination of ventral arms of tegumen and dorsal arms of saccus slightly sinuous; appendix angularis developed; anterior projection of saccus developed, cylindrical, and almost same length as gnathos; fultura inferior present; fultura superior absent; valva elongated and rectangular covered by long hairy-like setae at latero-ventral view, and short ones at inner view, costa developed and sub-squared, dorsal margin sinuous with apical third slightly serrated, ventral margin slightly projected at median region, apex pointed and slightly serrated; aedeagus straight, smaller than valva, anterior region oblong, posterior region about 1 ½ times longer than anterior region, distal margin dorsally truncated, with inner sclerotized triangular projection in lateral view, which is bipartite in ventral view, distal opening ventral and longer than proximal opening; cornuti absent.

Female genitalia (Figs 45-46). 8th tergite rectangular; papilla analis covered by long hairy-like setae at distal region, somewhat triangle, apophysis posterior developed; lamella antevaginalis trapezoid, with wrinkled appearance; lamella postvaginalis absent; ductus bursae membranous; corpus bursae longer than ductus bursae, with paired signa ventrally.

Variation. Sexual dimorphism is slight with females (FW length: 20-21 mm) larger than the males (FW length: 17-19 mm).

Distribution. *Genus A difficilis* has a disjunctive distribution from north Bolivia (Santa Cruz) to Midwest-South Brazil (Mato Grosso, Mato Grosso do Sul, Goiás and Minas Gerais), recorded in dry forests, primary and secondary growth vegetation, and riparian areas (Fig. 92). This species occurs sympatrically with the phenotypically similar species *Paryphthimoides p. poltys* (Prittwitz, 1865) in Mato Grosso.

Biology and phenology. This species flies between April to October (dry season), and it is apparently more abundant in July and August according to label data record.

Hostplant and immature stages. Unknown.

Type material and taxonomic history. Forster (1964) described *Paryphthimoides difficilis* based on one male [holotype] from Santa Rosa, Santa Cruz, Bolivia. A female specimen labelled as "allotype" of *P. difficilis* from Rio Yacuma, Espiritu, Beni, Bolivia was also found at ZSM, where all Forster's types are deposited. Lamas (2004) followed Forster's work, and no taxonomic changes has been proposed until the present study. *Genus A difficilis* is rare in collections, and has not been cited in published inventories or lists to Midwest Brazil (e.g: Brown & Mielke 1967; Motta 2002; Emery *et al.* 2006; Pinheiro & Emery 2006; Silva *et al.* 2010; Queiroz-Santos *et al.* 2016).

Examined material. 16 males, 11 females (4 specimens dissected). BRAZIL – *Mato Grosso*: Barra do Bugres, Alto Rio Paraguai, 150 m, 1 male, 26-29.VII.1974, H. & H. D. Ebert *leg*., DZ 28.455* (DZUP), Chapada dos Guimarães, Buriti, 700 m, 1 male, 1 female, 27.VIII.1978, ex-coll. H. Ebert, DZ 28.449, DZ 28.450 (DZUP), Diamantino, Fazenda São João, Rio Arinos, 300-400 m, 1 male, 1 female, 1-8.VIII.1974, H. Ebert *leg*., DZ 28. 446, DZ 28.452 (DZUP), 1 male, 1 female, 24.VII.1975, DZ 28.442, DZ 28.441 (DZUP), 3 males, 27.VII.1975, DZ 28.451*, DZ 25.705, DZ 28.437 (DZUP), 1 male, 5.X.1975, DZ 28.436 (DZUP), 1 male, 1 female, 28.IV.1978, DZ 28.439*, DZ 28.435 (DZUP), 1 male, 4.V.1978, E. Furtado *leg*., DZ 28.445 (DZUP), 1 female, 5.V.1978, H. & H. D. Ebert *leg*., DZ 28.438 (DZUP), 2 males, 11.VIII.1978, H. Ebert *leg*., DZ 28.457, DZ 28.443 (DZUP), 1 female, 14.VIII.1978, DZ 28.453 (DZUP), 2 males, 3 females, 17.VIII.1978, DZ 28.434, DZ 28.454, DZ 28.444, DZ 28.447, DZ 28.440 (DZUP), Nova Xavantina, Bacaba, UNIMAT, 1 female, 17-19.VIII.1997, Mielke *leg*., DZ 35.581 (DZUP); *Mato Grosso do Sul*: Três Lagoas, 1 male, 9.XI.2007, André Freitas *leg*., (ZUEC); *Goiás*: Iporá, 22 km W, 420 m, 1 female, 21.VI.1972, Mielke & Brown *leg*., DZ 28.456* (DZUP); *Minas Gerais*: Corinto, 1 male, 10.X.1979, C. Elias *leg*., DZ 28.448 (DZUP).

***Genus A numeria* (C. Felder & R. Felder, 1867) comb. n.** (Figs 13-16, 33-37, 47-48, 90, 93)

Neonympha numeria C. Felder & R. Felder, 1867: 478; syntypes: [Brazil] Bahia; Lectotype here designated: [Brazil] Bahia; NHMUK.

Euptychia ambigua Butler, 1867: 472, fig. 10; syntypes: [Brazil] Rio de Janeiro; Lectotype here designated: [Brazil] Rio de Janeiro; NHMUK. – Butler, 1877: 123. – Bryk, 1953: 61.

Diagnosis. This species resembles to *Genus A difficilis* by its wings phenotype, but can be distinguished of that by the lighter ground color between the median line and the outer margin of VW.

Male genitalia (Figs 33-37)**.** Tegumen convex in dorsal view, laterally subtriangular; uncus slightly sinuous, about 2/3 length of tegumen, dorsally elliptical, apex curved downwards and truncated in dorsal view; gnathos sinuous in lateral view, 2/3 length of uncus, larger at base and tapering at apex, combination of ventral arms of tegumen and dorsal arms of saccus slightly sinuous; appendix angularis developed; anterior projection of saccus developed, cylindrical, and almost same length as gnathos; fultura inferior present; fultura superior absent; valva elongated and rectangular covered by long hairy-like setae at latero-ventral view, and short ones at inner view, costa developed and sub-squared, dorsal margin sinuous with apical third slightly serrated, ventral margin slightly projected at median region, apex wide and slightly serrated; aedeagus straight, smaller than valva, anterior region oblong, posterior region about 1 ½ times longer than anterior region, distal margin dorsally truncated, with inner sclerotized triangular projection in lateral view, which is bipartite in ventral view, distal opening ventral and longer than proximal opening; cornuti absent.

Female genitalia (Figs 47-48)**.** 8th tergite rectangular; papilla analis oblong covered by long hairy-like setae at distal region; apophysis posterior absent; lamella antevaginalis trapezoid, with wrinkled appearance; lamella postvaginalis absent; ductus bursae membranous; corpus bursae almost same length as ductus bursae, with paired signa ventrally.

Variation. Sexual dimorphism is slight with females (FW length: 20-21 mm) larger than the males (FW length: 17-19 mm).

Distribution. This species is widely distributed in Northeastern Brazil (Tocantins, Maranhão, Piauí, Pernambuco and Bahia), with only one doubtful record (lectotype of *E. ambigua*) to Rio de Janeiro (Fig. 93). Occurs in association with forested and open vegetation areas, from sea level to 200 m.

Biology and phenology. Flies from February to October.

Hostplant and immature stages. Unknown.

Type material, lectotype designation and taxonomic history. *Neonympha numeria* C. Felder & R. Felder, 1867 was described based on an unstated number of specimens from Bahia, Brazil. One male syntype of *N. numeria* from Bahia was located at NHMUK. This specimen is herein designated as the lectotype of *Neonympha numeria* to fix the identity of the name, and it has the following labels: /Felder Coll[ectio]n/ Bahia, Luschnath type/ *numeria* Feld[er]/ Rothschild Bequesr B.M. 1939-1/ /Type ♂ *N. numeria* Feld. = ♂ of *E. ambigua* Butl[er]. comp[ared]. w[ith]. type, 10.XII.12. All ocelli identical. Butler's ♀ has transverse lines on underside rather more wavy [handwritten]/ BMNH(E) 1422119/; and two others will be added: Lectotypus *Neonympha numeria* C. Felder & R. Felder, 1867. T. Zacca, det. 2016/ NHMUK. The last two labels will be sent to the curator. Another female specimen from Iguarassu, Pernambuco, Brazil was also found at the NHMUK, but this specimen is not part of the type series.

Euptychia ambigua Butler, 1867 was described based on an unstated number of specimens from Rio de Janeiro, Brazil. One syntype without abdomen (but seems to be a female by the rounded FW) was found at NHMUK, and this specimen is herein designated as the lectotype of *E. ambigua* to fix the identity of the name; it has the following labels: /Type/ *Euptychia ambigua* Butler Monog[raph]/ B. M. TYPE No Rh 3212 *Euptychia ambigua* ♂ Butl[er]/ Rio de Janeiro, Pres by Mrs Smith 52-52/ Rio/ BMNH(E) 1267065/; and two others will be added: Lectotypus *Euptychia ambigua* Butler, 1867. T. Zacca, det. 2016/ NHMUK. The last two labels will be sent to the curator.

Examined material. 16 males, 11 females (3 specimens dissected). BRAZIL – *Maranhão*: Imperatriz, 1 male, 9.VII.1974, Exc. Dept. Zoologia, DZ 24.429 (DZUP), 1 female, 18.VII.1974, DZ 28.430* (DZUP), 1 male, 29.VII.1974, DZ 28.432* (DZUP); *Piauí*: Piracuruca, Parque Nacional Sete Cidades, 2 males, 18-21.IV.2012, O. Mielke & Casagrande *leg*., DZ 31.181, DZ 31.191 (DZUP); *Tocantins*: Xambiá, Rio Araguaia, 6°26'S 48°34'W, 1 male, 30.VII.2009, no collector (ZUEC); *Pernambuco*: Camaragipe, 1 female, 4.VIII.1957, ex-coll. H. Ebert, DZ 31.162 (DZUP), 1 male, 3.X.1957, DZ 31.202 (DZUP), 1 male, 7.IX.1959, DZ 31.183 (DZUP), Iguarassu, 1 female, no date, Rotschild Bequest B. M. 1939-1, BMNH(E) 1422088 (NHMUK), Recife, Várzea, 25 m, 2 females, 25.IX.1957, ex-coll. H. Ebert, DZ 34.795, DZ 31.163 (DZUP), 1 male, 6.X.1957, ex-coll. H. Ebert, DZ 31.161 (DZUP), 1 male, 27.VIII.1960, DZ 31.172 (DZUP), 1 male, 13.X.1960, DZ 31.173 (DZUP), 1 female, 7.X.1961, Ebert *leg*., DZ 31.171 (DZUP), 1 male, 7.X.1961, DZ 31.203 (DZUP), 1 male, 7.X.1969, Ebert *leg*., DZ 31.193 (DZUP), São Lourenço da Mata, 1 male, 1 female, 15.VII.1973, Mielke & Kesselring *leg*., DZ 28.431, DZ 31.182 (DZUP), Tiuma, 100 m, 1 male, 3.VIII.1958, H. Ebert *leg*., DZ 34.805 (DZUP), 1 female,

20.VII.1958, DZ 25.636 (DZUP), 1 female, 8.XI.1958, DZ 31.212 (DZUP), 1 male, 27.VII.1959, Ebert *leg*., DZ 31.200 (DZUP), 1 female, 26.V.1960, DZ 31.152 (DZUP), 1 male, 15.II.1969, DZ 31.153 (DZUP), 1 female, 5.VIII.1969, DZ 31.213 (DZUP).

***Genus A* sp.1** Zacca, Casagrande & Mielke **sp. n.** (Figs 17-20, 38-42, 49-50, 90, 94)

Diagnosis. This species resembles to *Genus A difficilis* but differs by the VW with darker ground colour, less crenulated median line on both VW and larger ocelli on VHW.

Description. *Head:* brown, frons light brown; eyes chocolate brown, densely hairy; post-genal area creamy; labial palpi curved upwards, dorsally with short mixed dark brown and creamy scales, laterally with short creamy scales, ventrally with elongated mixed dark brown and creamy scales at the first and second segments, dark brown short scales at the third segment; antennae brown with apex dark, laterally with white scales on each side of the base of the flagellomeres. *Thorax*: dorsally and ventrally covered by greyish-brown elongated scales. *Wings*: FW: male: 17–20 mm (HT: 19 mm), female: 20-21 mm. DFW and DHW: ground colour brown; elements of the VFW and VHW not visible through transparency; fringes brown. VFW: ground colour lighter than the DFW; dark brown lines, submedian and median lines straight or slightly crenulated, submarginal and marginal lines crenulated; four small ocelli from R_{4+5} to CuA_2. VHW: similar to the VFW, but with five or six ocelli from Rs to CuA_2 or 2A, each one surrounded by a narrow yellowish ring and with two silvery pupils; ocellus in Rs-M_1 smaller than others (about half the diameter of its neighbour), ocelli M_1-M_2 and CuA_1-CuA_2 equal size and ocelli M_2-M_3 and M_3-CuA_1 with faded ocellar spot.

Male genitalia (Figs 38-42). Tegumen convex in dorsal view, laterally subtriangular; uncus slightly sinuous, about 2/3 length of tegumen, dorsally elliptical, apex curved downwards and truncated in dorsal view; gnathos sinuous in lateral view, 2/3 length of uncus, very larger at base and tapering at apex, combination of ventral arms of tegumen and dorsal arms of saccus sinuous; appendix angularis developed and curved inwards; anterior projection of saccus short, cylindrical, and smaller than gnathos; fultura inferior present; fultura superior absent; valva elongated and rectangular covered by long hairy-like setae at latero-ventral view, and short ones at inner view, costa developed and sub-squared, dorsal margin sinuous with apical third slightly serrated, ventral margin slightly projected at median region, apex pointed and slightly serrated; aedeagus straight, same

length as valva, anterior region oblong, posterior region about three times longer than anterior region, distal margin dorsally truncated, with inner sclerotized triangular projection in lateral view, which is bipartite in ventral view, distal opening ventral and longer than proximal opening; cornuti absent.

Female genitalia (Figs 49-50). 8th tergite rectangular; papilla analis oblong covered by long hairy-like setae at distal region; apophysis posterior reduced; lamella antevaginalis trapezoid, with wrinkled appearance; lamella postvaginalis absent; ductus bursae membranous; corpus bursae almost the same length as the ductus bursae, with paired signa latero-ventrally.

Distribution. This species occurs in Midwest Brazil (Mato Grosso and Goiás) in association with open savannah and riparian vegetation, in altitudes below to 700 m, being sympatric with *Genus A difficilis* (Fig. 94).

Biology and phenology. Based on labels record, this species flies during all year round.

Hostplant and immature stages. Unknown.

Type material. Holotype male with the following labels: /Holotypus/ [Brasil, Mato Grosso], [Nova] Xavantina, 11.I.1977, ex-coll. Gifford/ DZ 31.211/ *Genus A* sp.1 Zacca det. 2016/ DZUP.

PARATYPES – 6 males, 1 female (3 specimens dissected). BRAZIL – *Mato Grosso*: Alta Floresta, Rio Teles Pires, Cachoeira Sete Quedas, 1 male, 21.IV.2009, no collector, MGCL-LOAN-288 (ZUEC), Cárceres, 1 male, 1 female, 9-11.XI.1984, Buzzi, Mielke, Elias & Casagrande *leg*., DZ 28.426*, DZ 38.023 (DZUP), Diamantino, Fazenda São João, Rio Arinos, 1 male, 28.IV.1978, H. & H. D. Ebert *leg*., DZ 28.428 (DZUP), [Nova] Xavantina, 1 male, 11.I.1977, ex-coll. Gifford, DZ 31.151 (DZUP); *Goiás*: Goiás Velho, 1 male, 15.VI.1976, D. Gifford *leg*., DZ 31.201 (DZUP), Iporá, 26 km W, 420 m, 1 male, 21.VI.1972, Mielke & Brown *leg*., DZ 28.427 (DZUP).

***Genus B* Zacca, Casagrande & Mielke gen. n.**

Type-species. *Satyrus grimon* Godart, [1824]

Diagnosis and description. Compared to all other genera of Euptychiina, *Genus B* is phenotypically similar to some species of *Hermeuptychia* Forster, 1964 (except *H. harmonia* Butler, 1867) by the absence of ocelli or spot on DW, small dark line on the lower disco cellular vein in the median region of the VFW, and reduced yellowish incomplete ocelli in M_2-M_3 and M_3-CuA_1 in VHW. However, *Genus B* differs to *Hermeuptychia* by its (1) large size (FW length: 18-24 mm), (2) hairy eyes (glabrous in *Hermeuptychia*), (3) five ocelli in VHW (six ocelli in *Hermeuptychia*), (4) ventral ocelli with two pupils (one pupil in *Hermeuptychia*), (5) median line projected inwards to the discal cell in M_2-M_3, (6) uncus dorsally elliptical with apex pointed (ovoid with apex truncated in *Hermeuptychia*; if pointed, as in *H. intricata* Grishin, 2014, the apex is shorter); (7) presence of two elongated cornutal patches; (8) apophysis posterior reduced; (9) corpus bursae larger than the ductus bursae; (10) lamella antevaginalis and postvaginalis fused forming the sterigma (mentioned as "antrum" by Cong & Grishin 2014).

Genus B is distinguished from *Paryphthimoides* Forster, 1964 by having (1) VHW with incomplete ocelli in M_2-M_3 and M_3-CuA_1, with wide yellowish ocellar ring and two silvery small pupils (or absent); (2) VHW with crenulated median line projected inwards in the discal cell (straight in *Paryphthimoides*), (3) apical region of the discal cell between R_{4+5} and M_1 non-projected (projected in *Paryphthimoides*) and (4) humeral vein reduced (developed in *Paryphthimoides*).

Discussion. Although described herein as a monotypic genus, *Genus B* shares several morphological characters with *Yphthimoides maepius* (Godart, [1824]), *Y. mimula* (Hayward, 1954) and *Y. affinis* (Butler, 1867). The elongated valva with apex developed (also called "apical process" by Seraphim *et al.*, 2013), aedeagus with two developed and elongated paired cornutal patches and lamella postvaginalis ovoid in ventral view are some characters that indicates these currently species of *Yphthimoides* might be transferred to *Genus B*. Curiously, Lee D. Miller (*in litt.* in Cardé *et al.* 1970) had already suggested that *Y. maepius* should be a species close to *Satyrus grimon*. Recent DNA-based phylogeny also provides a high support to the clade composed by those species and more 3-4 new species to be described (E. P. Barbosa *et al.*, *in prep.*), being *Genus B grimon* sister to *Y. mimula*.

***Genus B grimon* (Godart, [1824]) comb. n.** (Figs 51-64, 95)

Satyrus grimon Godart, [1824]: 490 [no illustration]; holotype: Brazil. Neotype here designated: Joinville, Santa Catarina, Brazil; DZUP.

Neonympha grimon; Doubleday, 1848: 33. – Westwood, 1851 *in* Doubleday: 375.

Euptychia grimon; Butler, 1867: 472. – Butler, 1868: 21. – Kirby, 1871: 49. – Butler, 1877: 119. – Weymer, 1911: 206, pl. 47 (female) – Gaede, 1931: 447. – Köhler, 1935: 212. – Ebert, 1969: 47.

Yphthimoides grimon; Freitas, 2004: 10, fig. 3.

Paryphthimoides grimon; Lamas, 2004: 221. – Uehara-Prado *et al*., 2004: 15 (male). – Peña *et al*., 2006: 35. – Carneiro *et al*., 2008: 264. – Teston & Corseuil, 2008: 47. – Peña *et al*., 2010: 248. – Dolibaina *et al*., 2011: 349. – Santos *et al*., 2011: 272. – Garcia-Salik *et al*. 2014: 279. – Thiele *et al*., 2014: 7.

Diagnosis. *Genus B grimon* is distinguished from other Euptychiina species by its well-crenulated submedian, median and submarginal lines in VHW and yellowish incomplete ocelli in M_2-M_3 and M_3-CuA_1, reniform and/or ovoid, smaller than the others ocelli in VHW.

Male genitalia (Figs 58-62). Tegumen slightly convex in dorsal view, posterior region dorsally projected, laterally subtriangular; uncus straight, about two times length of tegumen, with dorsal projection (called "domus" by Peña & Lamas 2005), apex curved downwards and truncated in dorsal view; gnathos curved upwards, slightly sinuous, wide at base and tapering at apex, varying between 2/3 and 3/4 length of uncus; combination of ventral arms of tegumen and dorsal arms of saccus slightly sinuous; appendix angularis developed; anterior projection of saccus developed, cylindrical, and almost same length as gnathos; fultura inferior present; fultura superior absent; valva elongated, rhomboidal, covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa developed and sub-squared, dorsal margin projected at apical third, ventral margin slightly projected at median region, apex pointed and curved upwards; aedeagus straight, longer than valva, cylindrical, anterior region digitiform, posterior region about ½ length of anterior region with truncated apex in dorsal view, distal opening ventral and longer than proximal opening.

Female genitalia (Figs 63-64). 8^{th} tergite rectangular; papilla analis somewhat triangle covered by long hairy-like setae at distal region, apophysis posterior short; lamella

antevaginalis fused to lamella postvaginalis with one spiracle located at upper margin of lateral expansions of the lamella antevaginalis; lamella postvaginalis oblong in ventral view; ductus bursae membranous; corpus bursae about two times length of ductus bursae, with paired signa dorsally.

Variation. Females can have a small dark spot in CuA_1-CuA_2 on DHW, and an additional tiny ocellus in 2A-3A (with or without pupils) near to the median line of the VHW.

Distribution. This species is widely distributed from Southeast Brazil to Argentina (very probably in Paraguay and Uruguay (Fig. 95), although no specimens were found in examined collections), mainly in association with semideciduous (Dolibaina *et al.* 2011; García-Salik *et al.* 2014; Thiele *et al.* 2014) and ombrophilous forests (Carneiro *et al.* 2008; Dolibaina *et al.* 2011; Santos *et al.* 2011), in both primary and secondary vegetation (Ebert 1969; Santos *et al.* 2011). An old record from Pará, Brazil (Doubleday, 1848) is probably wrong considering the most northern locality recorded to this species is in the Atlantic Forest of Espírito Santo, Brazil. *Genus B grimon* is distributed from sea level to 1100 m.

Biology and phenology. *Genus B grimon* is an uncommon (Ebert 1969) and multivoltine species, flying during all year around. It has been recorded attracted by bait traps (Santos *et al*. 2011; García-Salik *et al.* 2014).

Hostplant and immature stages. Unknown.

Type material, neotype designation and taxonomic history. *Satyrus grimon* Godart, [1824] was described based on only one specimen [holotype] from Brazil sent by the Russian naturalist Georg Heinrich von Langsdorff. The description of *Satyrus grimon* is very precise and allows the easy identification of this taxa, in spite of the absence of any illustration in Godart's work. The following characters were used to define this species: FW rounded and HW slightly crenulated, DW dark brown, without any ocelli or spot, VW with dark crenulated lines, VHW with 5 ocelli: ocelli 1, 2 and 5 are dark, circled by yellow ring, bipupilated; ocelli 3 and 4 yellowish and slightly reniform. Although Godart cites the presence of two yellowish ocelli on VFW, being the subapical bipupilated, it was observed that the number of ocelli on VFW may vary between 1-3, but the subapical ocellus is always black, circled by a yellow ring and bipupilated.

The holotype of *S. grimon* was not found at MNHN, NHMUK or Royal Museum Edinburgh, where the Godart's types are deposited (Grimshaw 1897; O. H. H. Mielke, G. Lamas, A. V. L. Freitas and R. Rougerie, *pers. comm.*). It is herein chosen a specimen from Santa Catarina, Brazil as the neotype of *Satyrus grimon* (Figs 51-52), consistent with the Godart's original description, to define the nominal taxon objectively and clarifying its taxonomic status. It has the following labels: /Neotypus/ Joinville, Santa Catarina, Brasil, 10-200 m, 4.XII.[19]69, Mielke & Miers *leg.*/ DZ 28.458/ Neotypus *Satyrus grimon* Godart, [1824]. T. Zacca, 2016/. DZUP.

Examined material. 28 males, 40 females (9 specimens dissected). BRAZIL – *Minas Gerais*: Barbacena, 1100 m, 1 male, 14.X.1952, H. Ebert *leg*., DZ 28.481* (DZUP), Cambuquira, 1 female, 7.X.1968, ex-coll. H. Ebert, DZ 28.480 (DZUP), 900 m, 1 male, 15.IX.1969, Ebert *leg*., DZ 28.479 (DZUP), 1 male, 24.IX.1968, DZ 28.518 (DZUP), Juiz de Fora, 500-800 m, 1 female, 26.X.1953, H. Ebert *leg*., DZ 28.477 (DZUP), Marliéria, Parque Estadual do Rio Doce, 200 m, 2 females, 27.VII.1972, H. & H. D. Ebert *leg*., DZ 28.475, DZ 28.476* (DZUP), 1 male, 17.V.1974, DZ 28.505 (DZUP), Poços de Caldas, 1 male, II.1963, ex-coll. H. Ebert, DZ 28.519 (DZUP), 1 female, 2.XI.1966, DZ 28.478 (DZUP). *Espírito Santo*: Linhares, Reserva Sooretama, 1 male, 28.VII.1966, Mielke & Brown *leg*., DZ 28.488 (DZUP). *Rio de Janeiro*: Angra dos Reis, Japuiba, 1 female, 19.III.1934, ex-coll. D'Almeida, DZ 28.508 (DZUP), Jussaral, 1 male, 22.II.1936, ex-coll. D'Almeida, DZ 28.514 (DZUP), Duque de Caxias, Imbariê, 150 m, 1 male, 2.IX.1970, Ebert *leg*., DZ 28.506* (DZUP), Guapimirim, 1 female, 20.VII.1919, P. Sandig *leg*., DZ 28.502 (DZUP), 1 female, 24.VII.1965, DZ 25.624 (DZUP), Muriqui, 1 male, 11.IX.1924, ex-coll. D'Almeida, DZ 28.500 (DZUP), Nova Iguaçu, Tinguá, Serra do Tinguá, 200 m, 1 female, 6.V.1951, H. Ebert *leg*., DZ 28.512 (DZUP), Petrópolis, 800-1100 m, 1 female, 10.XII.1950, H. Ebert *leg*., DZ 28.513 (DZUP), 1 female, 1.V.1962, Gagarin *leg*., DZ 28.503 (DZUP), 1 female, 23.II.1963, DZ 28.504 (DZUP), 1 female, 27.IV.1963, DZ 28.501 (DZUP), Rio de Janeiro, Jacarepaguá, Três Rios, 1 female, 3.X.1920, ex-coll. D'Almeida, DZ 28.507 (DZUP), Paineiras, 1 female, 20.IV.1952, H. Ebert *leg*., DZ 28.510 (DZUP), 1 female, 1.XI.1952, DZ 28.515 (DZUP), Pau da Fome, 1 female, V.1972, Oliveira *leg*., DZ 28.517 (DZUP), Serra do Itatiaia, 800 m, 1 male, 24.II.1964, Ebert *leg*., DZ 28.509* (DZUP), 1 female, 16.IV.1965, DZ 28.516 (DZUP), 1000 m, 1 female, 2.XI.1968, DZ 28.511 (DZUP); *São Paulo*: Diadema, Eldorado, 1 female, 27.IV.1941, ex-coll. D'Almeida, DZ 28.489* (DZUP), Formoso, 500 m, 1 male, 3.III.1966, Ebert *leg*., DZ 28.497 (DZUP), Rio Claro, 600 m, 1 male, 23.V.1963, Ebert *leg*., DZ 28.491 (DZUP), Salesópolis, Estação Biológica de Boraceia, 1 female, 30.XI.1941, ex-coll. D'Almeida, DZ 28.490 (DZUP), Ubatuba, 18 m, 1 female, 29.X.1962, Ebert *leg*., DZ 28.495 (DZUP), 25 m, 1 male, 1 female, 29.VII.1963, DZ 28.494, DZ 28.498* (DZUP), 2 females, 13.XII.1965 DZ

28.493, DZ 28.496 (DZUP), 1 female, 10.IV.1966, DZ 28.492 (DZUP); *Paraná*: Curitiba, 1 male, V.1941, Moure *leg*., ex-coll. D'Almeida, DZ 28.487 (DZUP), Foz do Iguaçu, 1 male, 5.XII.1966, Exc. Dept. Zoologia, DZ 5.416* (DZUP), Santa Clara, 650 m, 1 male, 21.XI.1986, Mielke & Casagrande *leg*., DZ 28.485 (DZUP), Morretes, Morro Alto, 1 female, 11.IV.2015, Mielke & Dolibaina *leg*., DZ 25.634 (DZUP), Paranaguá, Alexandra, 1 female, 3.X.1968, Mielke *leg*., DZ 28.482 (DZUP), 1 female, 3.IX.1969, DZ 28.483* (DZUP), Floresta Estadual do Palmito, 25°34'8"W 48°32'8"S, 10-20 m, 1 male, 25-26.VIII.2014, Leviski, Queiroz-Santos & Santos *leg*., DZ 25.664 (DZUP), Pontal do Paraná, Atami, 10 m, 1 female, 26-31.XII.2007, Mielke *leg*., DZ 28.484 (DZUP), 1 male, 4.IV.2012, DZ 25.644 (DZUP), Quatro Barras, Banhado, 1 male, 27.II.1969, Mielke *leg*., DZ 31.145 (DZUP), Tijucas do Sul, Rincão, 1 female, 23.IV.1967, Mielke *leg*., DZ 28.486 (DZUP), Três Barras do Paraná, Parque Estadual Guarani, 25°26'21"S 53°09'45"W, 1 female, 9-11.X.2012, LABLEP, DZ 25.654 (DZUP); *Santa Catarina*: Florianópolis, Naufragados, 1 male, 20.VIII.2004, E. C. Santos *leg*., DZ 25.615 (DZUP), Joinville, 200 m, 1 male, 4.XII.1969, Mielke & Miers *leg*., DZ 28.458 (DZUP), 1 female, 5.IX.1970, Miers & Mielke *leg*., DZ 28.459 (DZUP), 1 male, 20.XI.1970, Mielke *leg*., DZ 28.461 (DZUP), 1 male, 1 female, 1.XI.1971, Miers *leg*., DZ 28.462, DZ 28.464 (DZUP), 1 female, 16-19.I.1971, H. & K. Ebert *leg*., DZ 28.465 (DZUP), 1 male, 30.XI.1979, Mielke & Miers *leg*., DZ 28.460 (DZUP), 1 female, 18.V.1980, H. Miers *leg*., DZ 28.468 (DZUP), Itaji, 1 female, 26.I.1941, K. Smith *leg*., DZ 28.471 (DZUP), Papanduva, 1 female, 26.II.1968, Moure & Mielke *leg*., DZ 28.463 (DZUP), São Bento do Sul, 1 male, 6.VII.1969, ex-coll. H. Ebert, DZ 25.704 (DZUP), 850 m, 1 female, 4.XII.1969, DZ 28.470 (DZUP), 900 m, 1 female, 13.III.1980, Ebert *leg*., DZ 28.466 (DZUP), 1 male, 21.X.1980, DZ 5.415* (DZUP), 1 male, 31.X.1980, DZ 28.467 (DZUP), 1 male, 3.XI.1980, DZ 28.469 (DZUP).

Genus C Zacca, Casagrande & Mielke gen. n.

Type species. *Magneuptychia flavofascia* Zacca & Siewert, 2014.

Diagnosis and description. Similar to species of *Paryphthimoides*, *Genus C* has hairy eyes, DW darker than the VW ground colour and DHW with an ocellus in CuA_1- CuA_2, but can be distinguished by four ocelli in VFW (two complete ocelli in M_1-M_2 and CuA_1-CuA_2, and two incomplete in M_2-M_3 and M_3-CuA_1). Venation of *Genus C* is similar to species of *Paryphthimoides*, except by the basal third of 2A strongly sinuous in FW (straight in *Paryphthimoides*), humeral vein in T-shape (curved in *Paryphthimoides*) and HW with 3A straight (sinuous in *Paryphthimoides*). Male genitalia of the *Genus C* is characterized by the flattened tegumen (convex in *Paryphthimoides*), uncus straight and

two times the length of the tegumen (sinuous in *Paryphthimoides*) and aedeagus with only one developed cornutal patch (two cornutal patches in *Paryphthimoides*). Furthermore, *Genus C* has sterigma (called "antrum" by Cong & Grish 2014) similar to that found in species of *Hermeuptychia*, but absent in *Paryphthimoides. Genus C* differs to species of *Hermeuptychia* (see photos in Seraphim *et al.* 2013 and Cong & Grishin 2014) by the absence of androconial patches on DW and dark line on the lower disco cellular vein in the median region of the VFW, four bipupilated ocelli in VFW (five monopupilated ocelli in *Hermeuptychia*), five bipupilated ocelli in VHW (six monopupilated ocelli in *Hermeuptychia*), uncus straight (arched downwards in *Hermeuptychia*), valva with broad apex (thin and elongated in *Hermeuptychia*) and thickness and straight aedeagus (narrow and curved in *Hermeuptychia*).

Discussion. Although *Genus C flavofascia* had been suggested as a member of *Paryphthimoides* (Kaminski *et al.* 2015), the preliminary results of the molecular phylogeny performed by Espeland and collaborators (*in prep*.) indicates this species does not belongs to *Paryphthimoides*, but it is most basal and a non-diverse linage. In that study, the authors have included *P. poltys, P. terrestris* and *P. brixius* (*P. vestigiata* and *P. touloulou* not included) in their analysis and used mitochondrial genes. Other molecular phylogeny using the same taxa, but also including nuclear genes (E. P. Barbosa *et al.*, *in prep.*) recovered a clade composed by *P. brixius* (*M. flavofascia* (*P. terrestris P. poltys*)) as *Paryphthimoides*. However, *Genus C flavofascia* has a low support (36) being an indicative that the inclusion of this species in *Paryphthimoides* might be an artifact caused by not sampling all species of the genus (see checklist of *Paryphthimoides* in Chapter 1) in their analysis. Morphological evidences cited and discussed in Zacca *et al.* (2014) (see Appendix I) suggest *Genus C* could be sister of *Paryphthimoides*, and both genera share similar habitat preferences.

Genus C flavofascia (Zacca & Siewert, 2014) comb. n.

Magneuptychia flavofascia Zacca & Siewert *in* Zacca *et al*., 2014: 71-78, figs 2-20 (male, female, genitalia), fig. 35 (map), by original description; holotype: Brazil, Distrito Federal, Brasília; DZUP. – Kaminski *et al*., 2015: 1692, fig. 1 (habitat). – Nakahara *et al.*, 2016: 3. – Queiroz-Santos *et al*., 2016: additional material.

Remarks. This species was described based on old specimens from Heinz Ebert's collection, partly deposited at DZUP. Additional records and description of habitat preferences and behavior were recent published by Kaminski *et al*. (2015). A male specimen was found at ZSMS labelled as paratype of a new species of *Erichthodes*, from Brasilia, Distrito Federal, Brazil, identified by Brown (probably Keith S. Brown-Jr). No additional record has been found in the examined collections.

Transference of *Neonympha melobosis* Capronnier, 1874 to *Taydebis* Freitas, 2003, and *Euptychia undulata* Butler, 1867 to *Hermeuptychia* Forster, 1964

In order to review all species previously treated in *Paryphthimoides* by Lamas (2004) and not placed in any new genera above described, *Neonympha melobosis* Capronnier, 1874 and *Euptychia undulata* Butler, 1867 are revised below.

***Taydebis melobosis* (Capronnier, 1874), comb. n.** (Figs, 65-77, 96).

Neonympha melobosis Capronnier, VII.1874: 30, pl. 1, fig. 5; syntypes: [Brazil], Minas Gerais, Chapéu d'Uvas. Neotype male here designated: Brazil, Minas Gerais, Virgínia; DZUP.

Euptychia peculiaris Butler, XII.1874: 424; syntypes: [Brazil] Minas Gerais. Lectotype here designated: [Brazil], Minas Gerais; **syn. n.**

Euptychia melobosis; Butler, 1877: 119. – Weymer, 1911: 207, pl. 46. – D'Abrera, 1988: 776 (male) [misidentification].

Taydebis peculiaris; Freitas, 2003: 100, Figs 1-5 (male, female, genitalia, larva, pupae). – Lamas, 2004: 222.

Paryphthimoides melobosis; Lamas, 2004: 221.

Diagnosis. See description and illustrations of "*Taydebis peculiaris*" in Freitas (2003).

Male genitalia (Figs 70-74)**.** See description in Freitas (2003).

Female genitalia (Figs 75-77). 8th tergite rectangular and weakly sclerotized; papilla analis ovoid, sclerotized at base and covered by long hairy-like setae at distal region, apophysis posterior absent; sterigma rhombic, lateral expansions of lamella antevaginalis with one spiracle located at upper margin; ductus bursae membranous; corpus bursae

about four times longer than ductus bursae, signum extremally reduced, dorsally located at anterior region of corpus bursae.

Distribution. *Taydebis melobosis* is restrict to Serra da Mantiqueira (Minas Gerais and São Paulo, Brazil), in altitudes between 500-1700 m (Fig. 96).

Biology and phenology. *Taydebis melobosis* occurs in grass fields and riparian areas (Freitas 2003). This species is multivoltine and flies during all year round.

Hostplant and immature stages. Unknown, but captive individuals has been recorded feeding on *Axonopus compressus* (Sw.) (Poaceae) (Freitas 2003).

Neotype and lectotype designation and taxonomic history. *Neonympha melobosis* Capronnier, 1874 was described based on an unstated number of specimens collected in early November in Chapéu d'Uvas (currently district of Juiz de Fora), Minas Gerais, Brazil. Capronnier compared this species with *Neonympha sosybius*, a Neartic species currently placed in *Hermeuptychia* Forster, 1964 (Lamas 2004), differing from that by the larger size of *N. melobosis* (wingspan: 41 mm). Syntypes of *N. melobosis* were not found at RBINS, where Capronnier's types are deposited, and it is probably lost (Gerardo Lamas, Wouter Dekoninck and Stefan Kerkhof, *pers. comm.*). To define objectively *N. melobolis* and clarify its taxonomic status, the neotype for this species is herein designated (Figs 66-67). This neotype agrees with the original description and illustration (Fig. 65). Although two very old specimens from Juiz de Fora, Minas Gerais were found at DZUP, it was preferable to choose another specimen, in better preservation and recently collect (allowing future DNA analysis), from a locality 250 Km far to the type locality. This neotype has the following labels: /Neotypus/ 13-15.II.2010, Fazenda dos Campos, Virgínia, Minas Gerais, [Brazil], 1500 m, Mielke & Casagrande *leg*./ Neotypus *Neonympha melobosis* Capronnier, 1874. T. Zacca, det. 2016/. DZUP.

Euptychia peculiaris Butler, 1874 was described based on an unstated number of male specimens from an unknown locality in Minas Gerais. One male syntype was found at NHMUK, and this specimen is herein designated as the lectotype of *E. peculiaris*; this specimen has the following labels: /Type H.T/ Syntype/ Type of species/ Minas Geraes [sic] [Brazil] Druce Coll./ Godman-Salvin Coll. 1904-1. *Euptychia peculiaris* Butl[er]/ *E. peculiaris* Butler Type [handwritten]/ B.M. Type No. Rh 3292 *Euptychia peculiaris* ♂/;

and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia peculiaris* Butler, 1874. T. Zacca det. 2016/. NHMUK. The last two labels will be sent to the curator.

Remarks. *Euptychia peculiaris* is herein proposed as a new junior synonym of *N. melobosis*, considering the priority of publication of the names. Although the lectotype of *E. peculiaris* has developed ocelli in $Sc+R_1$-M_1 and M_1-M_2, the size of the ventral ocelli can be strongly variable (see further discussion in Freitas 2003). This can explains why *E. peculiaris* and *N. melobosis* were never recognized before as the same species. Although *N. melobosis* has been treated in *Paryphthimoides* by Lamas (2004), this species fails to be placed in this genus because does not have its diagnostic characters (see Chapter 1). Indeed, morphological evidence, mainly the wing elements and venation, male and female genitalia supports its transference to *Taydebis* Freitas, 2003. As a result of the synonym of *E. peculiaris*, specimens cited in Freitas (2003) from Serra do Mar seems to an undescribed species of *Taydebis* (Zacca *et al*., *in prep.*).

Examined material. 25 males, 10 females (6 specimens dissected). BRAZIL – *Minas Gerais*: Barbacena, 1100 m, 1 female, 23.VIII.1951, H. Ebert *leg*., DZ 38.048, 2 males, 27.IX.1951, H. Ebert *leg*., DZ 38.042*, DZ 38.047, 1 male, 16.X.1951, H. Ebert *leg*., DZ 38.038, 1 male, 10.VIII.1952, H. Ebert *leg*., DZ 38.044, 1 male, 18.X.1952, H. Ebert *leg.*, DZ 38.041 (DZUP), 1 female, 27.XI.1953, H. Ebert *leg*., DZ 38.045, Camanducaia, Monte Verde, 1650 m, 1 male, 1 female, 8.III.1971, H. Ebert *leg*., DZ 38.043, DZ 38.040, 2 males, 18-21.III.1981, H. Ebert *leg*., DZ 38.039, DZ 38.046 (DZUP), Delfim Moreira, 15 Km SE, 1500-1700 m, 2 males, 17-18.I.2004, Mielke & Casagrande *leg*., DZ 38.027*, DZ 38.031 (DZUP), Juiz de Fora, 500-800 m, 1 male, 12.X.1973, H. Ebert *leg*., DZ 38.037, Virgínia, Fazenda dos Campos, 1500 m, 3 males, 2 females, 13-15.II.2010, Mielke & Casagrande *leg*., DZ 38.033, DZ 38.032, DZ 38.029*, DZ 38.034, DZ 38.036 (DZUP). *São Paulo*: Campos do Jordão, Toriba, 1750 m, 1 male, 12.XI.1952, DZ 38.035 (DZUP), 2 males, 1 female, I.1966, ex-coll. H. Ebert, DZ 38.051, DZ 38.052, DZ 38.028*, 1 male, II.1966, ex-coll. H. Ebert, DZ 38.049, Fazenda da Guarda, 2 males, 15.II.1942, D'Almeida *leg*., DZ 38.050, DZ 38.057 (DZUP), 2 males, 10.IX.1966, H. Ebert *leg*., DZ 38.055, DZ 38.054* (DZUP), 1 male, 11.IX.1966, H. Ebert *leg*., DZ 38.026*, Umuarama, 1700 m, 2 females, 17.III.1964, H. Ebert *leg*., DZ 38.058, DZ 38.056, 1 female, 12.V.1964, H. Ebert *leg*., DZ 38.053 (DZUP), Usina do Fojo, 1 male, I.2014, A. Freitas *leg*., MGCL-LOAN-375 (ZUEC-AVLF), Cotia, Reserva Florestal Morro Grande, 1 female, 22.XI.2000, K. S. Brown & A. V. L. Freitas *leg*., MGCL-LOAN-478 (ZUEC), Santo André, Paranapiacaba, Reserva Instituto Botânico, 23°46'S 46°18'W, 900 m, 1 male, 18.II.2007, M. U. Prado *leg*., MGCL-LOAN-344 (ZUEC).

***Hermeuptychia undulata* (Butler, 1867) comb. n.** (Figs 78-89, 97)

Euptychia undulata Butler, 1867: 475. pl. 39, fig. 13; syntypes: Brazil, Pará. Lectotype male here designated: Brazil, Pará; NHMUK. – Butler, 1968: 23. – Kirby, 1871: 50. – Möschler, 1877: 323. – Butler, 1877: 119. – Weymer, 1890: 100. – Sharpe, 1890: 568. – Weymer, 1911: 207, pl. 48a. – Gaede, 1931: 466. – Bryk, 1953: 60. – D'Abrera, 1988: 776 (male, female).

Yphthimoides undulata; Forster, 1964: 103, 105, fig. 106.

Paryphthimoides undulata; Lamas 2004: 221. – Emery *et al*., 2006: 90. – Pinheiro & Emery, 2006: 12. – Pinheiro & Emery, 2007: 72. – Brévignon, 2008: 79, fig. 62a-62c (male, genitalia). – Garcia-Salik *et a*l., 2014: 279.

Not named (morphogroup 12); Seraphim *et al*., 2013: 7, Suppl. Mat. figs S3, S4.

Diagnosis. Similar to other species of *Hermeuptychia*, this species has glabrous eyes and a small dark line on the lower disco cellular vein in the median region of the VFW. Among the genus, *H. undulata* resembles to *H. atalanta* (as interpreted by Seraphim *et al.* 2013), but can be distinguished by its larger size (16–19 mm), VFW with median line pointed in CuA_2-2A (slightly rounded in *H. atalanta*), VHW with median line more crenulated (slightly crenulated in *H. atalanta*), uncus wide on its entire length (thin at the mid apical region in *H. atalanta*) (Fig. 83), valva with rounded apex and dorsally curved inwards (pointed and straight in *H. atalanta*) (Fig. 83), posterior region of aedeagus slightly curved (well-curved in *H. atalanta*).

Male genitalia (Figs 83-87). Tegumen flattened, posterior region dorsally projected, laterally subtriangular; uncus curved downwards, almost same length as tegumen, laterally wide at base; gnathos straight, almost same length as uncus; combination of ventral arms of tegumen and dorsal arms of saccus sinuous; appendix angularis absent; anterior projection of saccus developed, cylindrical, and longer than gnathos; fultura inferior and fultura superior present; valva elongated, rhomboidal, covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa developed and sub-trapezoid, dorsal margin projected at apical third and serrated, ventral margin slightly projected at median region, apex elongated, pointed and curved upwards; aedeagus slightly curved upwards, longer than valva, cylindrical, anterior region digitiform, asymmetrical with a lateral projection in left side, posterior region about two times length of anterior region

with truncated apex in dorsal view and sclerotized lateral plate ventrally bifid, distal opening ventral and longer than proximal opening, cornuti absent.

Female genitalia (Figs 88-89). 8th tergite somewhat triangle; papilla analis ovoid with reduced ventral projection, covered by long hairy-like setae at distal region, apophysis posterior short; sterigma oblong, lateral expansions of lamella antevaginalis with one spiracle located at upper margin; ductus bursae membranous; corpus bursae as long as ductus bursae, with reduced paired signa dorsally.

Distribution. *Hermeuptychia undulata* occurs in Colombia (Cundinamarca and Vichada), Suriname (Paramaribo), French Guiana (Saint Laurent du Maroni) and Brazil (Amazonas, Pará, Maranhão, Tocantins, Mato Grosso, Distrito Federal and Paraná) (Fig. 97), with an old doubtful record to Yanacachi, Bolivia (Weymer 1890) that needs to be confirmed.

Biology and phenology. Based on labels records, this species is multivoltine and fly during all year round. It has been recorded in forested and open savannah areas in association with riparian vegetation (Emery *et al*. 2006; García-Salik *et al.* 2014), being attracted by bait trap (Garcia-Salik *et al.* 2014).

Hostplant and immature stages. Unknown.

Type material, lectotype designation and taxonomic history. *Euptychia undulata* Butler, 1867 was described based on unstated number of specimens from Pará, Brazil. Two males syntypes were located at NHMUK, and one of them is herein designated as the lectotype of *E. undulata* (Fig. 82) to fix the identity of the name; this specimen has the followings labels: /TYPE H.T./ Para, Pres. by Mrs Smith 45-70/ Para/ B.M. TYPE No. Rh 3227 *Euptychia undulata* ♂ Butl[er]/ *Euptychia undulata* Butler Monog[raph]/; and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia undulata* Butler, 1867. T. Zacca det. 2016/. NHMUK. The last two labels will be sent to the curator.

Remarks. Butler (1867) mentioned the similarity of this species to *Hermeuptychia hermes* (Fabricius, 1775), but distinct from the latter by its larger size and very crenulated median lines on VW. Later, Forster (1964) treated this species as a member of *Yphthimoides* Forster, 1964, based on the upper wing surface mostly brown, with one or two very small eyespots at anal margin of HW and shape of valva in genitalia. The last character cited was not clearly described by Forster, but it is possible to infer, by his

illustrations (Forster 1964: 103, 105, fig. 106), he was referring to the presence of teeth in the apex valva. Several other Euptychiina genera have the apex valva with teeth (also called "serrated"), such as some members of *Magneuptychia* and *Caeruleuptychia* Forster, 1964, but the elongated and narrow apex of the valva is typical of species of *Hermeuptychia*, in addition to the absence of cornuti (see illustrations in Forster 1964 and Seraphim *et al.* 2013). *Hermeuptychia undulata* was cited and illustrated as "not named – morphogroup 12" by Seraphim *et al.* (2013). In that study, *H. undulata* was recovered as the most basal lineage of *Hermeuptychia*, being sister of a clade composed by the remaining species of the genus. With the inclusion of *H. undulata*, the genus *Hermeuptychia* now comprises 14 species. Although the great advances made into the genus with molecular studies (Seraphim *et al.* 2013), and the revision of the Neartic species (Cong & Grishin 2014; Warren *et al.* 2014), a complete taxonomic revision of *Hermeuptychia* is in urgent need, especially focusing in South American taxa.

Examined material. 30 males, 12 females (6 specimens dissected). COLOMBIA – *Cundinamarca*: Ubaque, 1 female, no date, Dr Bürger *leg*., Rotschild Bequest B. M. 1939-1, BMNH(E)1422282 (NHMUK); *Vichada:* Maipures, 2 males, XII.1898, Cherrie *leg*., Rotschild Bequest B. M. 1939-1, BMNH(E) 806442, BMNH(E) 1422344 (NHMUK). SURINAME – *no specific locality*: 1 male, no date, ex-coll. Fruhstorfer, BMNH(E) 834630 (NHMUK); *Berg en Daal*: 2 males, IV.1892, C. W. Ellacombe *leg*., Rotschild Bequest B. M. 1939-1, BMNH(E) 1422313, BMNH(E) 834631 (NHMUK). BRAZIL – *Amazonas*: no specific locality, 1 male, 1 female, no date, E. H. W. Wickham *leg*., Canutama, Allianca, Rio Purus, 2 males, IX-X.1913, BMNH(E) 834622, BMNH(E) 834625 (NHMUK), Barcelos, Rio Aracá, Foz do Rio Curuduri, 0°05'50"S 63°17'22"W, 1 male, 1 female, 5-19.VI.2010, Mielke & Casagrande *leg*., DZ 35.661, DZ 31.186 (DZUP), Itacoatiara, 1 male, I.1958, Kesselring *leg*., DZ 35.641 (DZUP), Manaus, 1 male, IX.1884, Rotschild Bequest B. M. 1939-1, BMNH(E) 806443 (NHMUK), Tonantins, 1 male, 1 female, VII-IX.1880, M. de Mathan *leg*., Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 834619, BMNH(E) 834624 (NHMUK); *Pará*: no specific locality, 1 male, no date, A. M. Moss *leg.*, Rotschild Bequest B. M. 1939-1, BMNH(E)1422220 (NHMUK), Belém, Utinga, 1 male, 18.VII.1936, ex-coll. D'Almeida, DZ 28.386* (DZUP), Juruti, 1 male, IV.1905, M. de Mathan *leg*., Rotschild Bequest B. M. 1939-1, BMNH(E) 1422251 (NHMUK), 1 female, no date, Pres. by J. W. H. Trail 77-64, BMNH(E) 834629 (NHMUK), Oriximiná, Porto Trombetas, 1 male, 11.I.1980, Gifford *leg*., DZ 35.711 (DZUP), 1 male, 15.VII.1980, DZ 28.387* (DZUP); *Maranhão*: Feira Nova do Maranhão, 26 km E, Fazenda Forquilha dos Brejos, 7°00'29"S 46°26'30"W, 1 male, 28.XI-4.XII.2010, Mielke & Carneiro *leg*., DZ 35.621 (DZUP), 1 male, 13-16.IV.2011, Mielke & Casagrande *leg*., DZ 31.205 (DZUP), Imperatriz, 1 male, 20.II.1974, Ex.

Dept. Zoologia, DZ 28.396* (DZUP), 4 males, 2 females, 14-21.VIII.2011, Mielke *leg*., DZ 28.397, DZ 28.398, DZ 28.399, DZ 29.400, DZ 28.401, DZ 28.402 (DZUP); *Tocantins*: Ilha do Bananal, 2 males, 7.IX.1979, Gifford *leg*., DZ 28.395, DZ 5.432* (DZUP), 1 female, 10.IX.1979, DZ 5.433* (DZUP), 1 female, 23.VI.1979, DZ 28.394 (DZUP), 1 male, 16.VI.1979, DZ 5.431* (DZUP), 1 male, 21.VI.1979, DZ 28.391 (DZUP), 1 female, 24.VI.1979, DZ 28.388 (DZUP), 1 female, 9.IX.1979, DZ 28.390 (DZUP), 2 males, 1 female, 20.IX.1980, DZ 28.389, DZ 28.392, DZ 28.393 (DZUP).

Discussion

Current distribution records suggest that the species in *Genus A, Genus B* and *Genus C* predominantly occur in Brazil, with the latter endemic of the Brazilian savannah. The low number of specimens of these genera found in collections may be a reflection of their non-attractive coloration and small size, making them not interesting to capture by collectors. Nevertheless, most of these species can be easily captured in bait traps. Future inventories of butterflies should include this type of sampling to provide data to studies focusing in assessment of the spatio-temporal distribution of these species.

The present study reaffirms the statement made by Peña *et al.* (2010) that a great deal of taxonomic work still need to be done in Euptychiina. Laborious review of taxa, especially those ones currently in synonymy, can helps to a better identification of the species, and consequently a better delimitation of genera in Euptychiina. Thus, phenotypical variation on wing pattern should be carefully examined; this phenomenon has been led to several taxonomical mistakes overtime, such as the non-association between *Taydebis peculiaris* and *T. melobosis* until the present work (see further examples in Chapter 3 and Freitas *et al.* 2016).

Furthermore, this study reinforce the usefulness of male genitalia for delimitation of genera in Euptychiina, and shows equivalent importance of female genitalic characters for delimitation of taxa. Concerning female genitalia, most of the Euptychiina genera have corpus bursae with paired signa composed by a set of small sclerotized spines (similar to *Genus A* and *Genus B*, for example). However, *Taydebis melobosis* has a single extremely reduced signum, dorsally located at the anterior region of the corpus bursae. The only species of Euptychiina reported with single signum is *Euptychia attenboroughi* Neild, Nakahara, Fratello & Le Crom, 2015 (see illustration in Neild *et al*. 2015), but

differs structurally by the series of small sclerotized spines. Other interesting feature of the female genitalia of *T. melobosis* is the presence of sterigma; this structure is also found in species of *Hermeuptychia* (see photos in Cong & Grishin 2014), but the limited number of works treating on female genitalia in Euptychiina prevents further discussion. Comparative morphological studies are the first step to provide characters that can be useful in future phylogenies reconstructions in association with molecular evidence.

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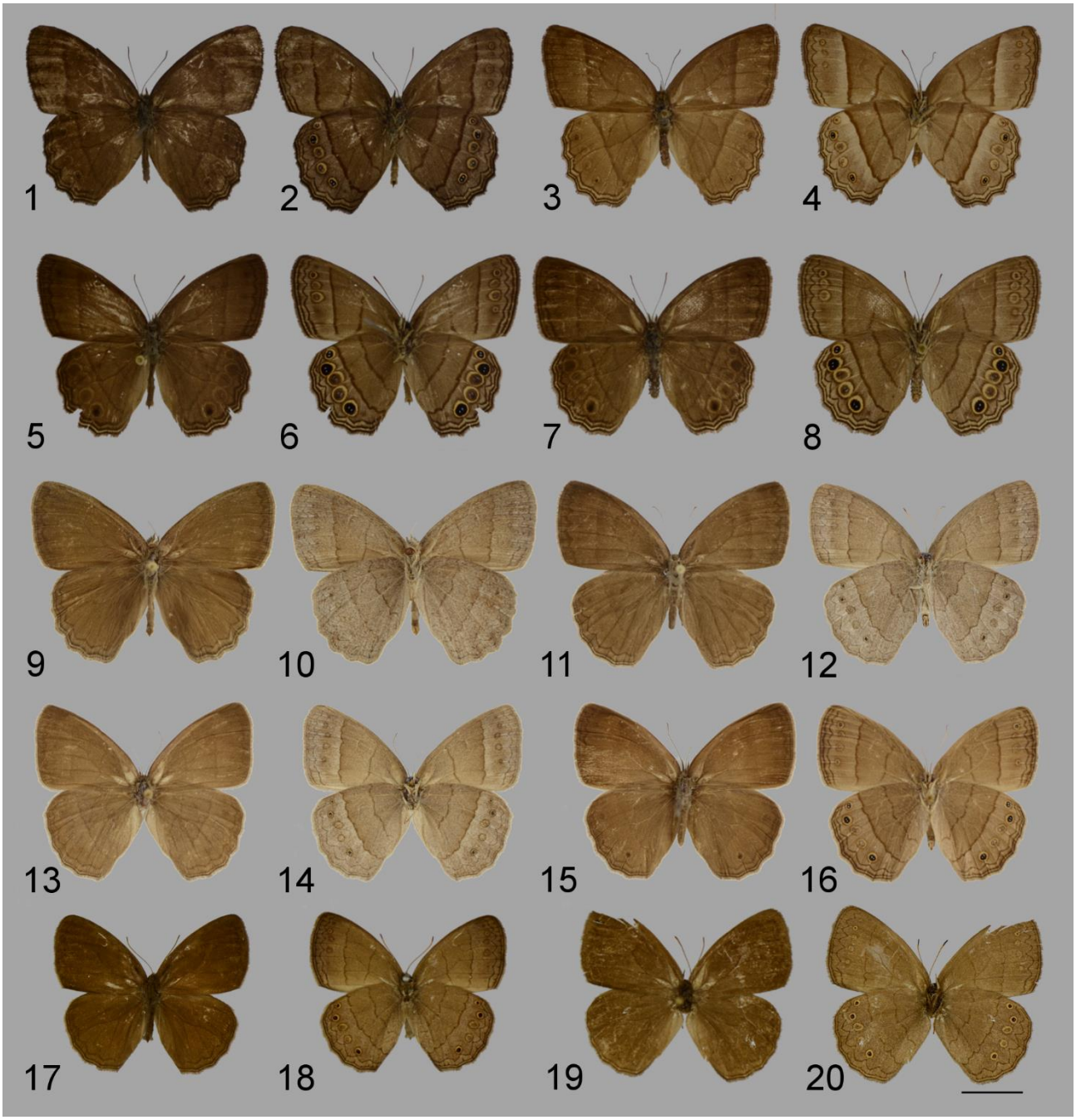
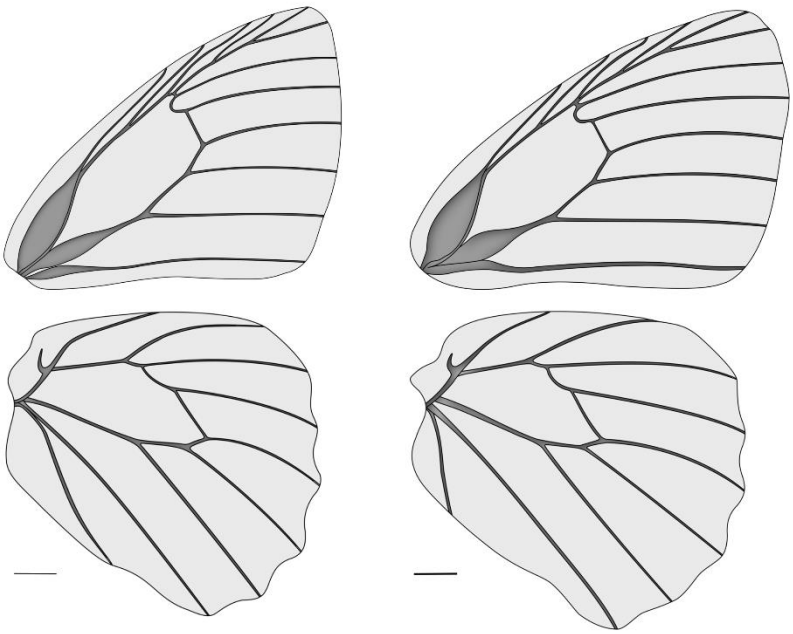
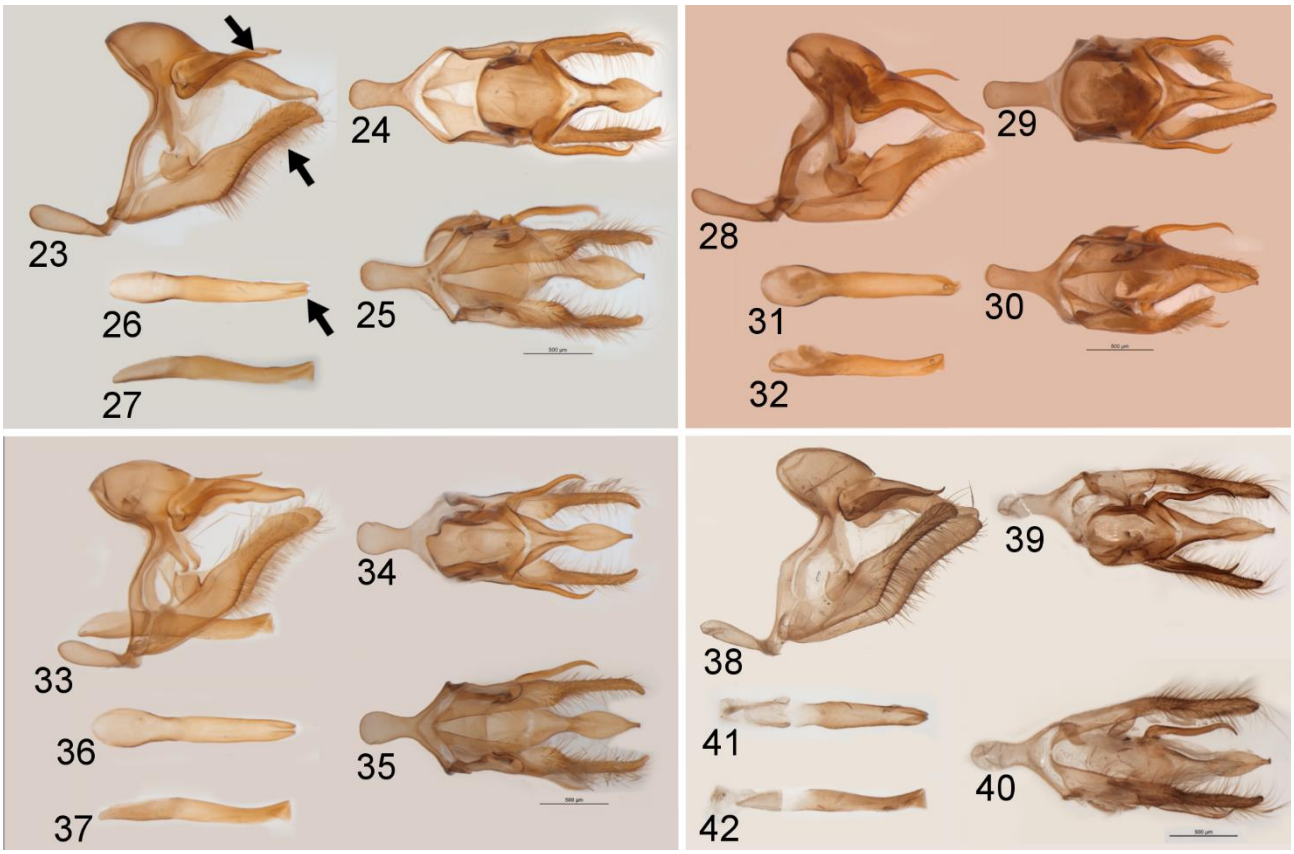


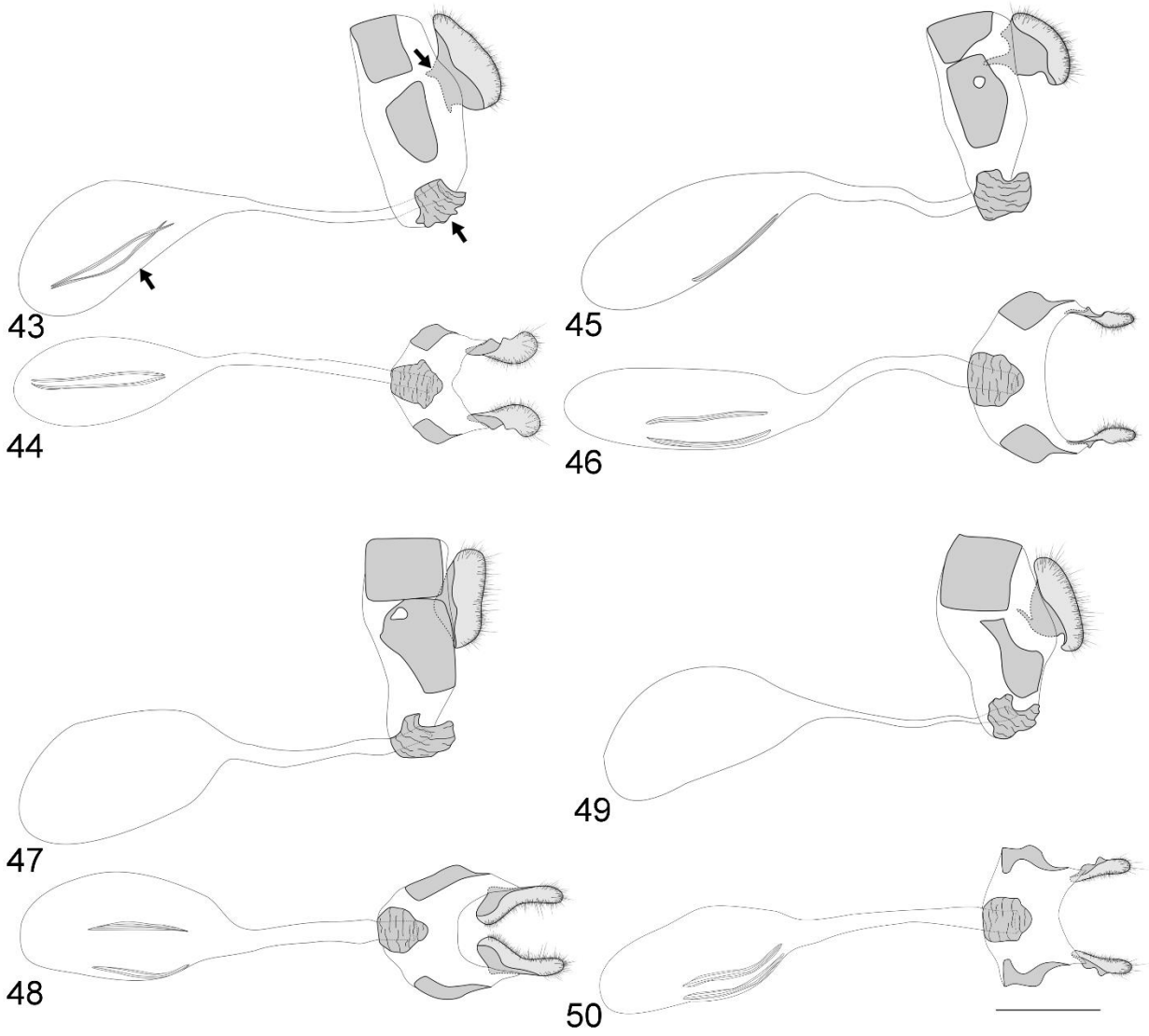
Figures 1-20. Species of *Genus A.* 1-4. *Genus A argulus argulus*: 1. Neotype male, dorsal; 2. Male, ventral; 3. Female, dorsal (Maranhão, Brazil); 4. Female, ventral. 5-8. *Genus A argulus* ssp.1: 5. Holotype male, dorsal; 6. Male, ventral; 7. Allotype female, dorsal; 8. Female, ventral. 9-12. *Genus A difficilis*: 9. Male, dorsal (Minas Gerais, Brazil); 10. Male, ventral; 11. Female, dorsal (Mato Grosso, Brazil); 12. Female, ventral. 13-16. *Genus A numeria*: 13. Male, dorsal (Maranhão, Brazil); 14. Male, ventral; 15. Female, dorsal (Pernambuco, Brazil); 16. Female, ventral. 17-20. *Genus A* sp.1: 17. Holotype male, dorsal; 18. Male, ventral; 19. Allotype female, dorsal; 20. Female, ventral. Scale = 1 cm.



Figures 21-22. Wing venation of *Genus A argulus argulus*. 21. Male; 22. Female. Scale = 1 cm.

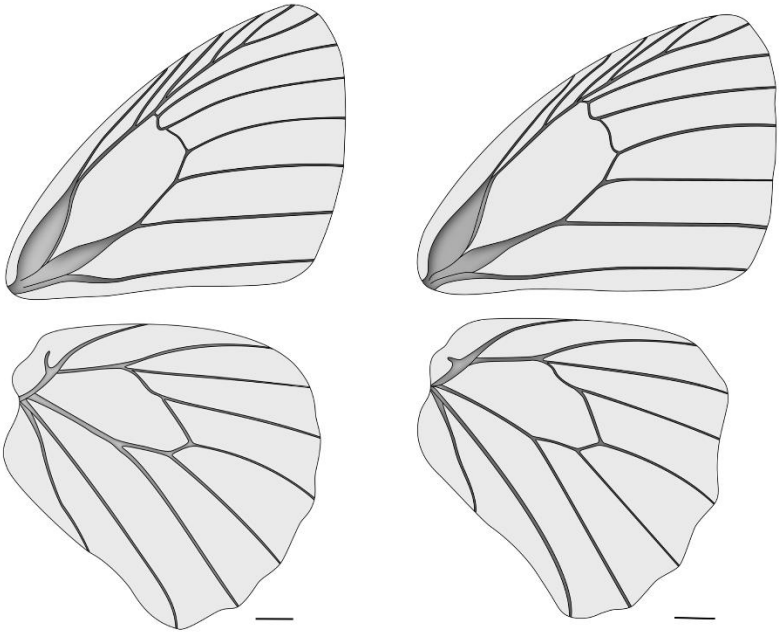


Figures 23-42. Male genitalia of species of *Genus A*. 23-27. *Genus A argulus argulus*: 23. Lateral; 24. Dorsal; 25. Ventral; 26. Aedeago, dorsal; 27. Aedeago, lateral. 28-32. *Genus A difficilis*: 28. Lateral; 29. Dorsal; 30. Ventral; 31. Aedeago, dorsal; 32. Aedeago, lateral. 33-37. *Genus A numeria*: 33. Lateral; 34. Dorsal; 35. Ventral; 36. Aedeago, dorsal; 37. Aedeago, lateral. 38-42. *Genus A* sp.1: 38. Lateral; 39. Dorsal; 40. Ventral; 41. Aedeago, dorsal; 42. Aedeago, lateral. Scale = 1 mm. Setae indicates remarkable features among the species of the genus.

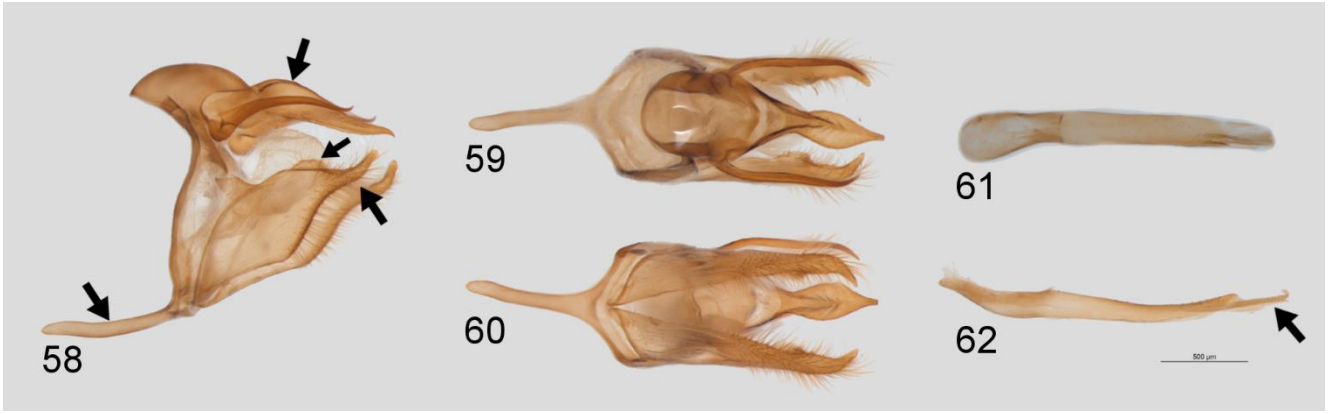


Figures 43-50. Female genitalia of species of *Genus A*: 43-44. *Genus A argulus argulus*: 43. Lateral; 44. Ventral. 45-46. *Genus A difficilis*: 45. Lateral; 46. Ventral. 47-48. *Genus A numeria*: 47. Lateral; 48. Ventral; 49-50. *Genus A* sp.1: 49. Lateral; 50. Ventral. Scale = 1 mm. Setae indicates remarkable features among the species of the genus.

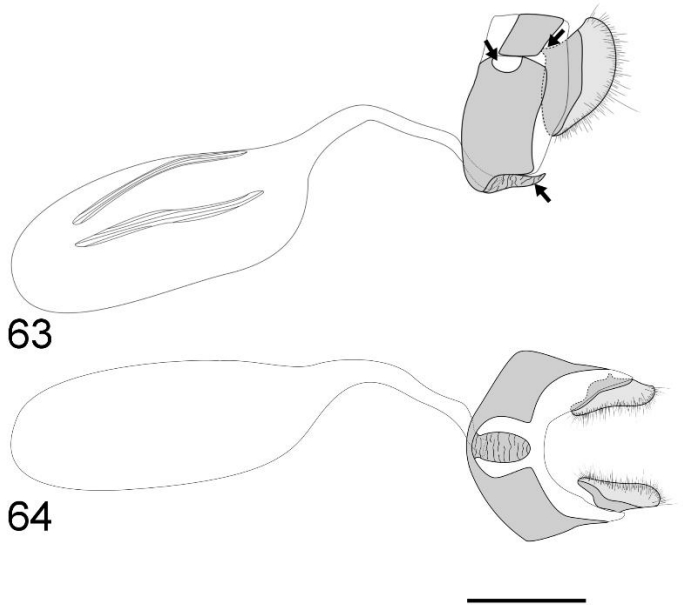
Figures 51-55. Neotype of *Genus B grimon* and variation on wing phenotype: 51. Neotype male, dorsal; 52. Neotype male, ventral; 53. Female, ventral (Pontal do Paraná, Paraná, Brazil); 54. Male, ventral (Joinvile, Santa Catarina, Brazil); 55. Female, ventral (Rio de Janeiro, Rio de Janeiro, Brazil). Scale = 1 cm.



Figures 56-57. Wing venation of *Genus B grimon*. 56. Male; 57. Female. Scale = 1 cm.



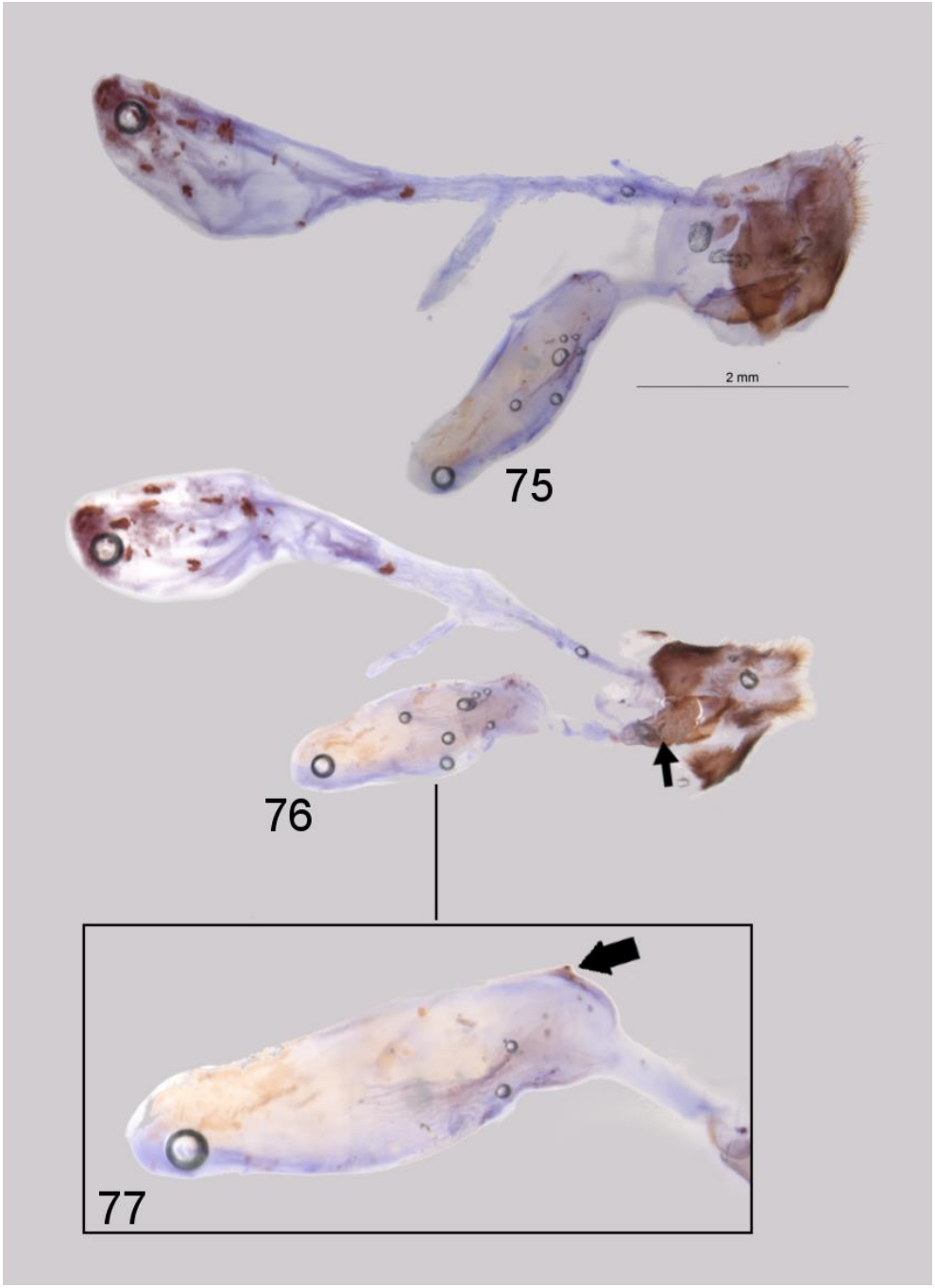
Figures 58-62. Male genitalia of *Genus B grimon*. 58. Lateral; 59. Dorsal; 60. Ventral; 61. Aedeago, dorsal; 62. Aedeago, ventral. Setae indicates remarkable features of the species.



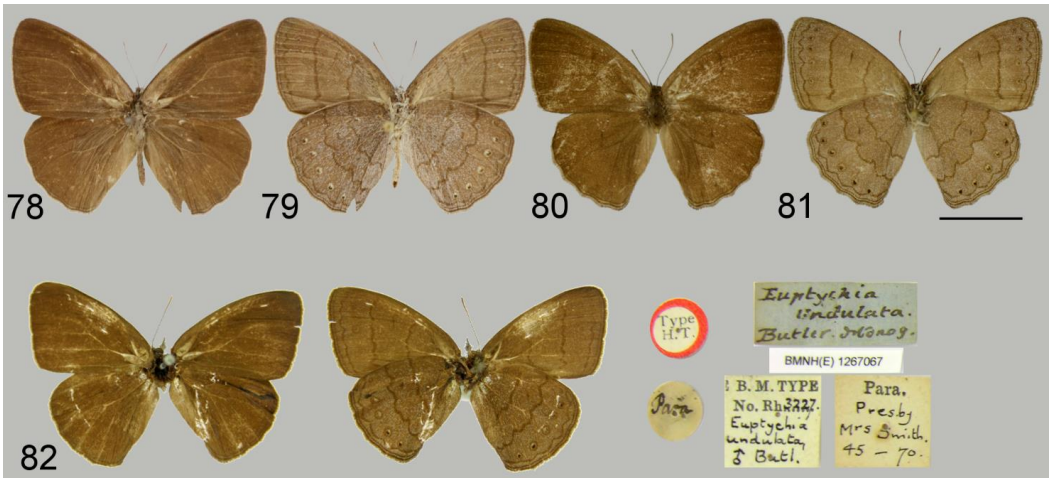
Figures 63-64. Female genitalia of *Genus B grimon*. 63. Lateral; 64. Ventral. Scale = 1 mm. Setae indicates remarkable features of the species.

Figures 65-69. *Taydebis melobosis*. 65. Original illustration of *Neonympha melobosis*. 66. Neotype male, dorsal; 67. Neotype male, ventral; 68. Female, dorsal; 69. Female, ventral.

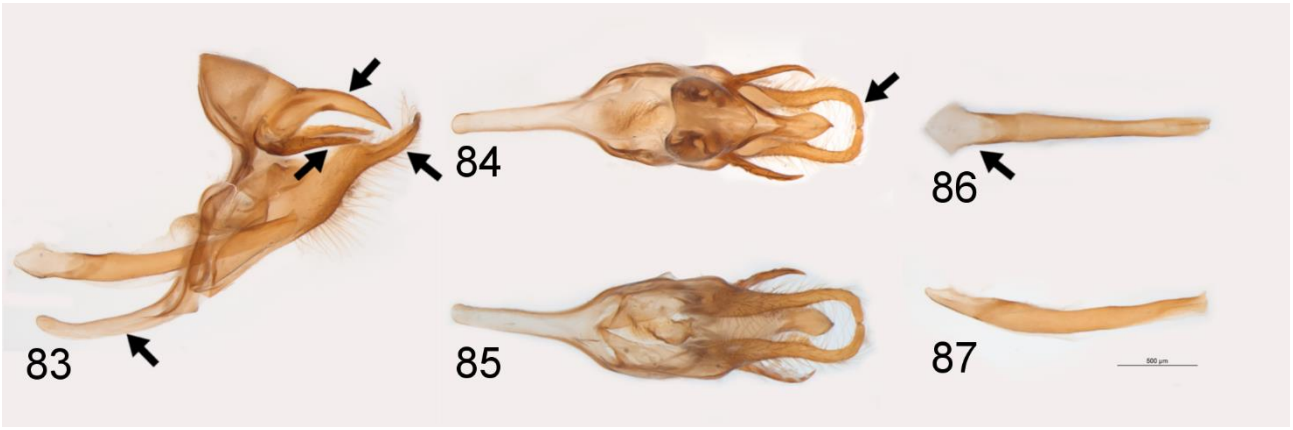
Figures 70-74. Male genitalia of *Taydebis melobosis*. 70. Lateral; 71. Dorsal; 72. Ventral; 73. Aedeago, dorsal; 74. Aedeago, ventral. Setae indicates remarkable features of the species.



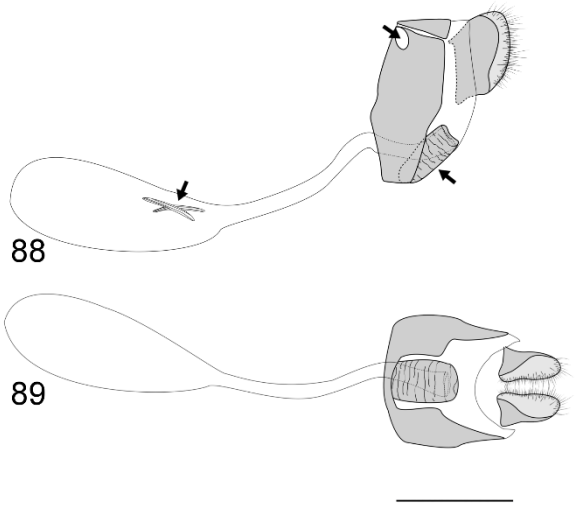
Figures 75-77. Female genitalia of *Taydebis melobosis*. 75. Lateral; 76. Ventral. 77. Corpus bursae with signum (black arrow).



Figures 78-82. *Hermeuptychia undulata*. 78. Male, dorsal (Goiás, Brazil); 79. Male, ventral; 80. Female, dorsal (Goiás, Brazil); 81. Female, ventral; 82. Lectotype male designated in the present study and respective labels. [Photos: B. Huertas, Trustees of the Natural History Museum, London].



Figures 83-87. Male genitalia of *Hermeuptychia undulata*. 83. Lateral; 84. Dorsal; 85. Ventral; 86. Aedeago, dorsal; 87. Aedeago, ventral. Setae indicates remarkable features of the species.



Figures 88-89. Female genitalia of *Hermeuptychia undulata*. 88. Lateral; 89. Ventral. Scale = 1 mm. Setae indicates remarkable features of the species.

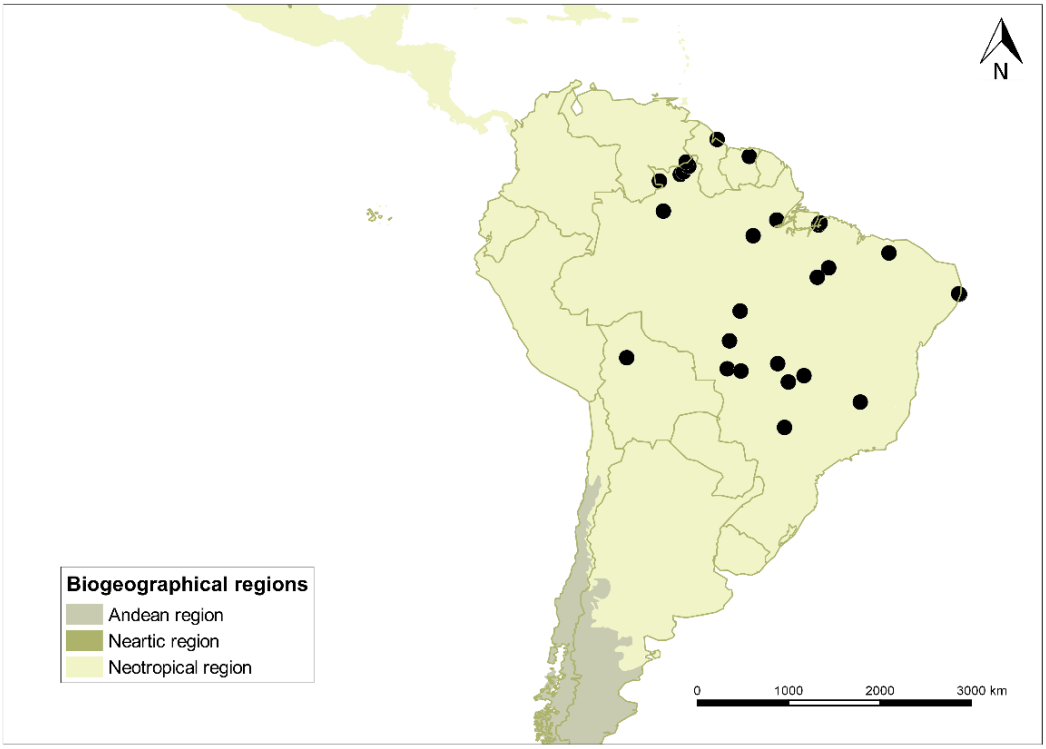


Figure 90. Geographical distribution of *Genus A.*

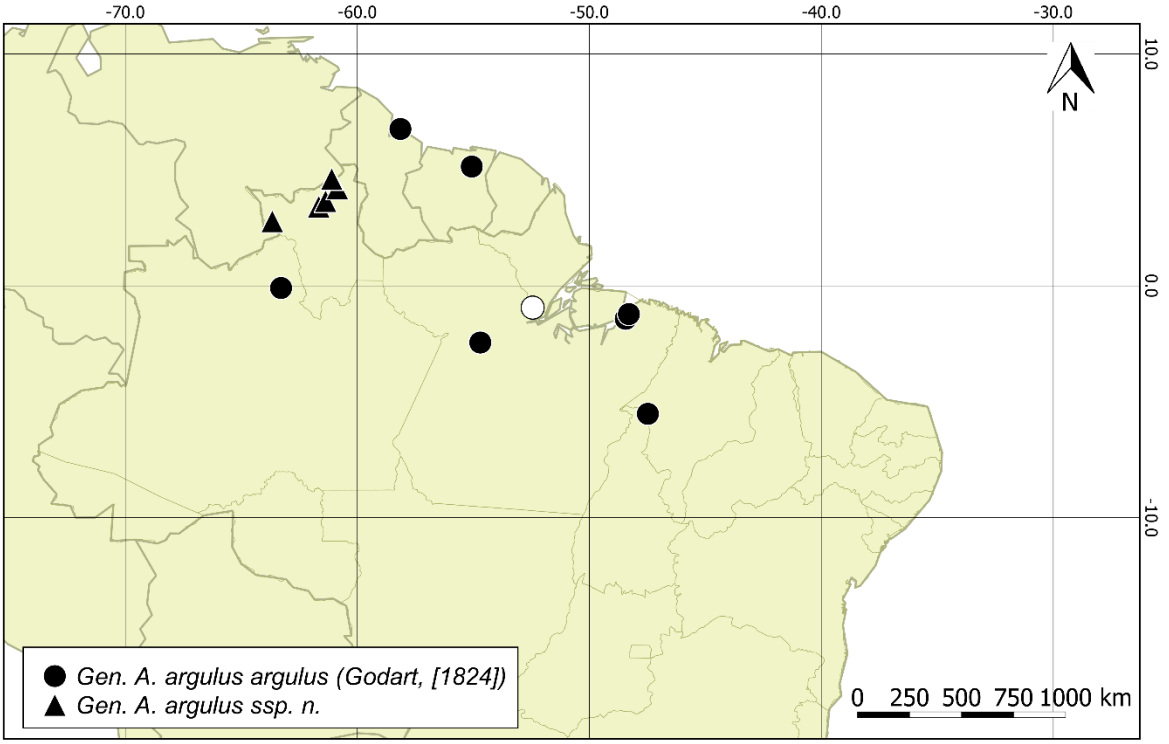


Figure 91. Geographical distribution of *Genus A argulus argulus* and *Genus A argulus* ssp.1. White dots indicates literature records.

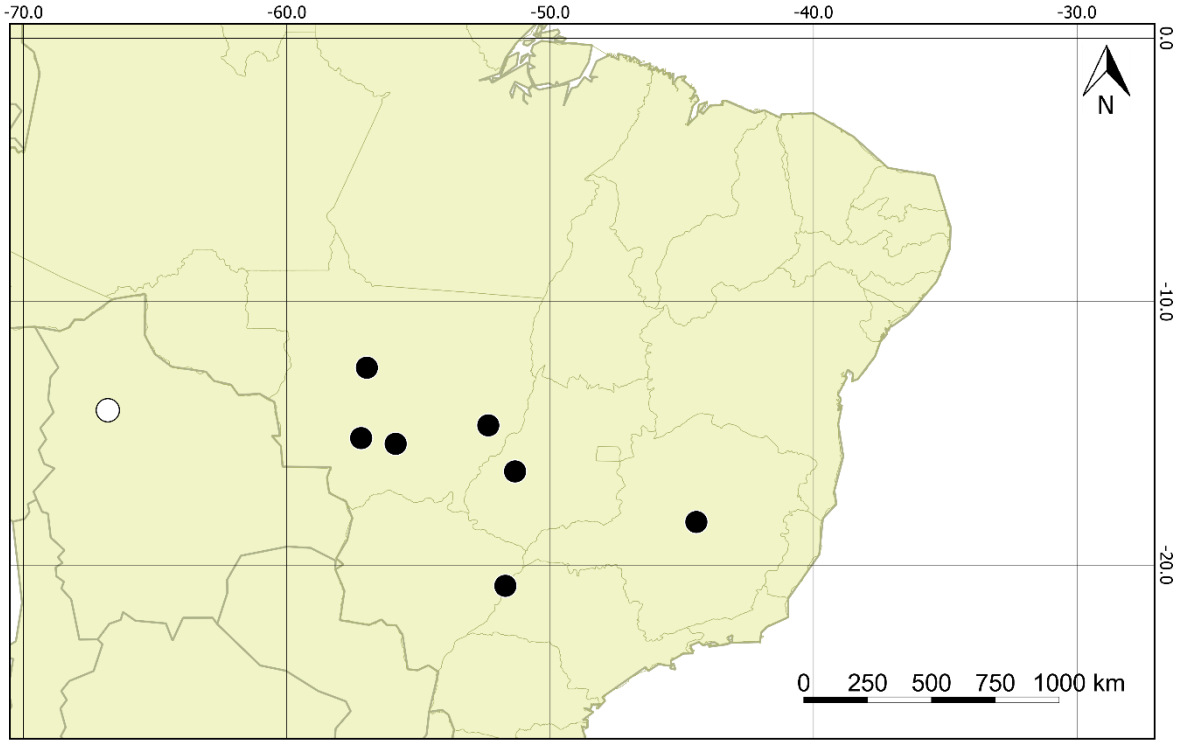


Figure 92. Geographical distribution of *Genus A difficilis.* White dots indicates literature records.

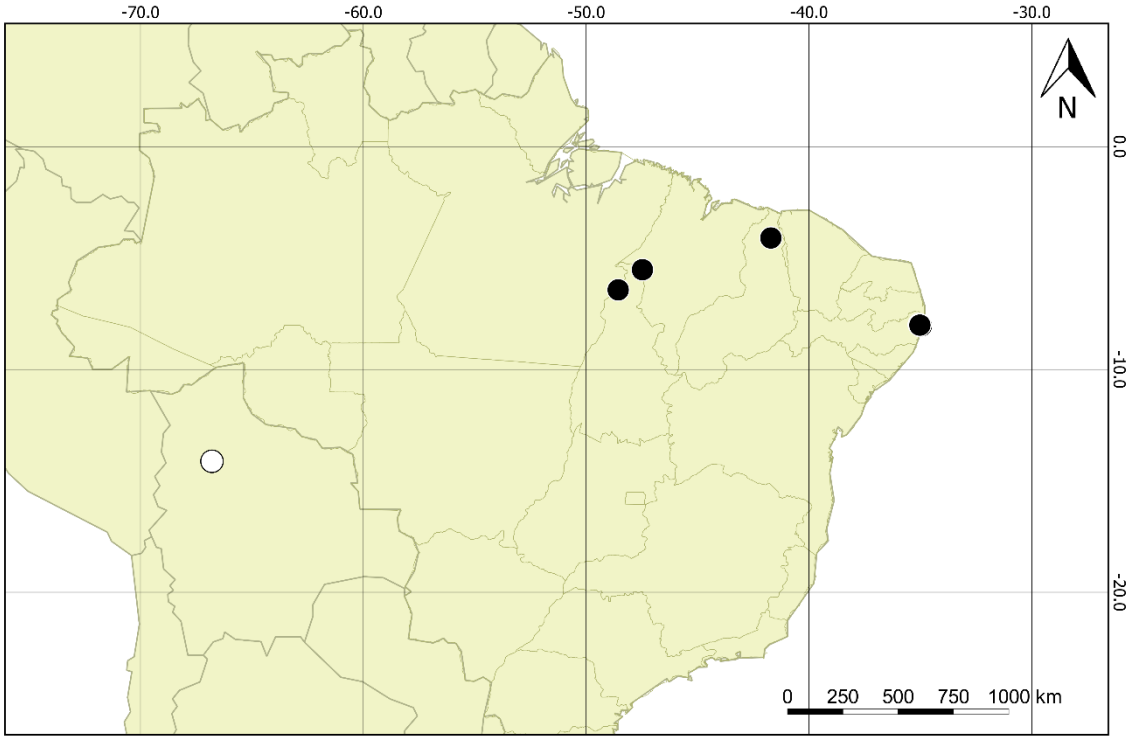


Figure 93. Geographical distribution of *Genus A numeria*. White dots indicates literature record.

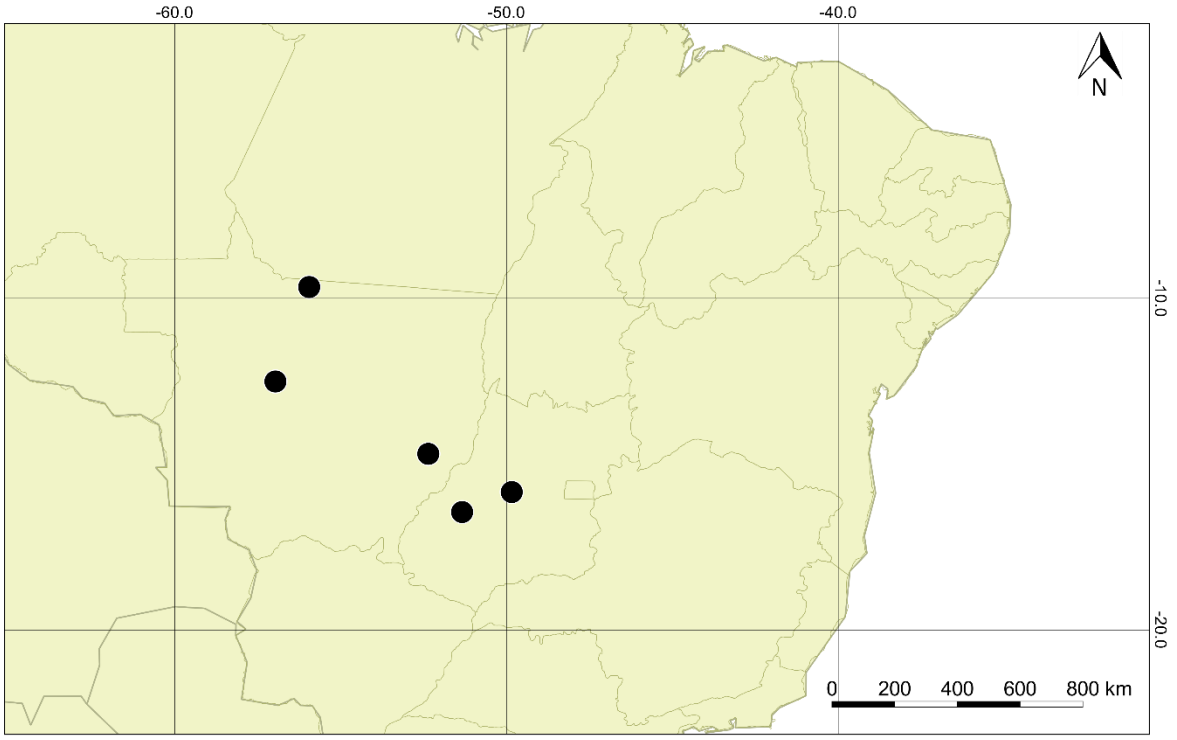


Figure 94. Geographical distribution of *Genus A* sp.1.

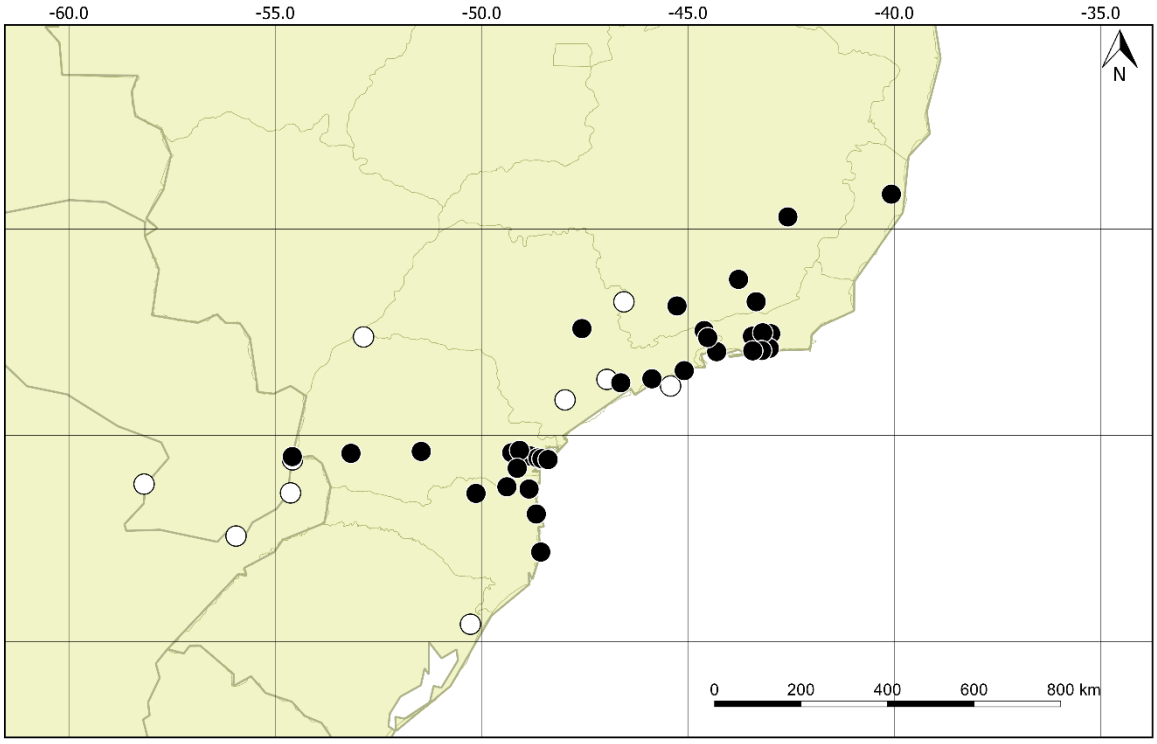


Figure 95. Geographical distribution of *Genus B grimon.* White dots indicates literature records.

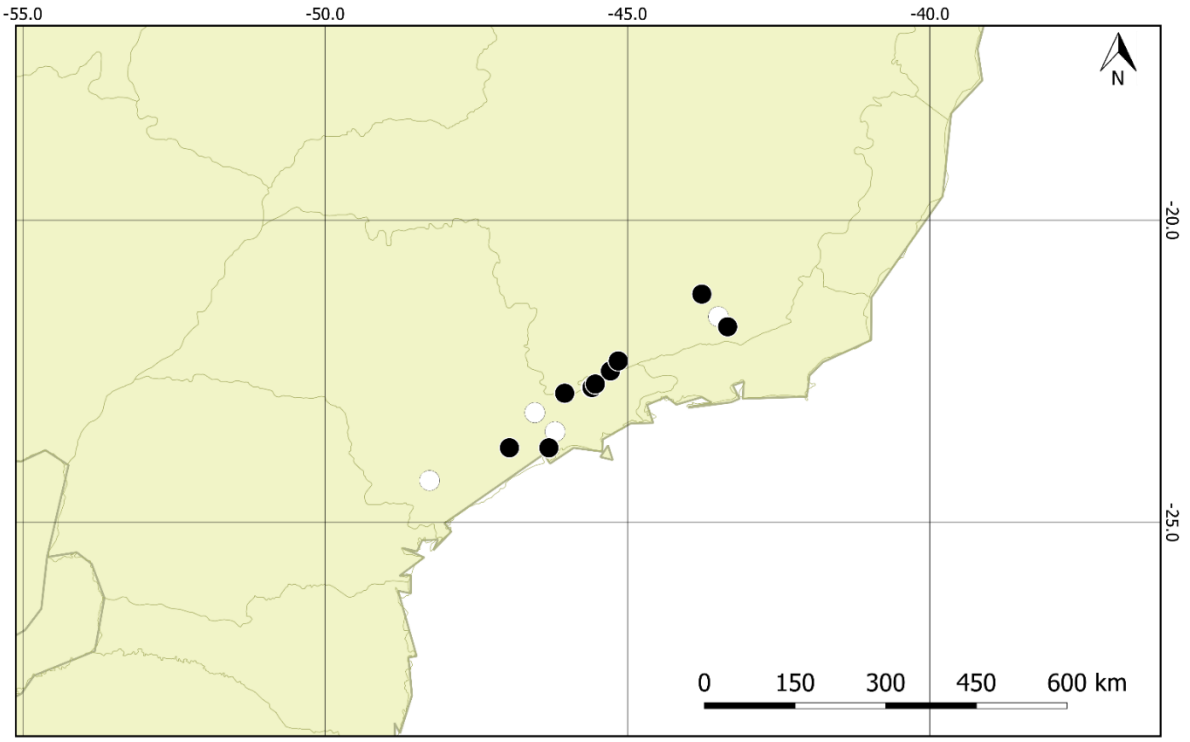


Figure 96. Geographical distribution of *Taydebis melobosis.* White dots indicates literature records.

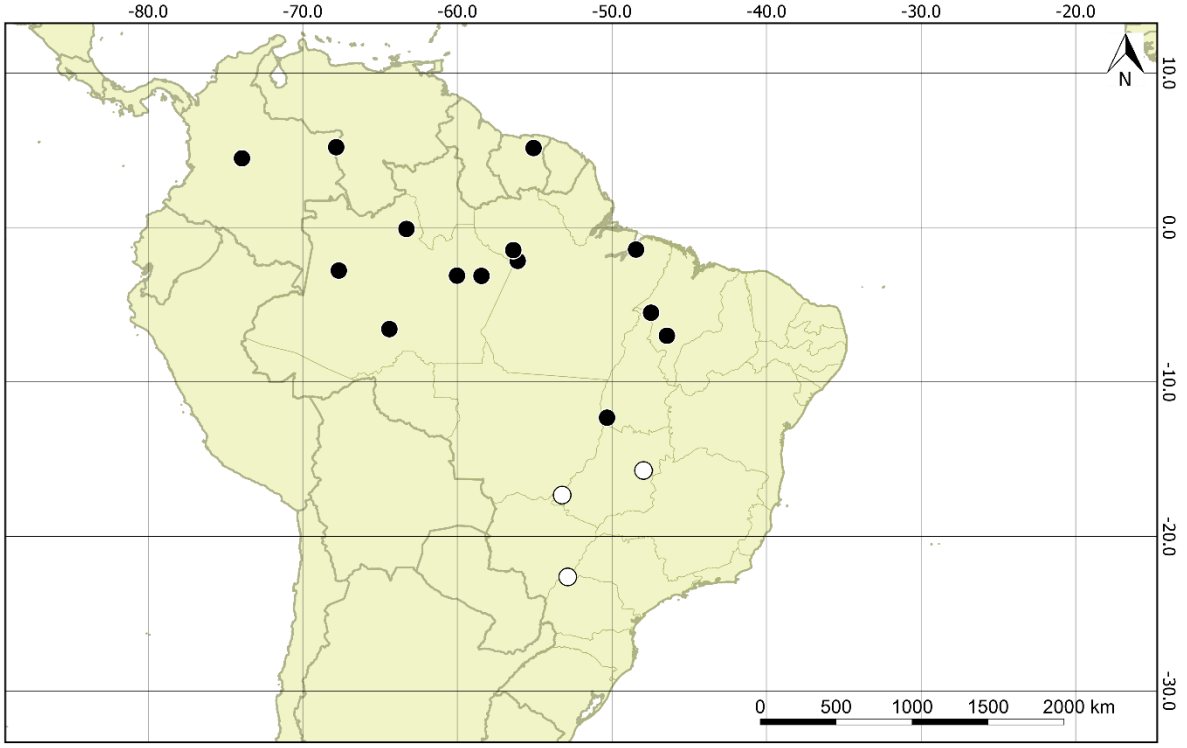


Figure 97. Geographical distribution of *Hermeuptychia undulata*. White dots indicates literature records.

Revision of the Neotropical butterfly genus *Cissia* Doubleday, 1848 (Lepidoptera: Nymphalidae, Satyrinae)

Abstract

The genus *Cissia* Doubleday, 1848 is revised and a new taxonomic arrangement is proposed mainly based on morphological evidence. *Cissia moneta* (Weymer, 1911) is a new synonym of *Cissia penelope* (Fabricius, 1775). *Euptychia eous* Butler, 1867 and *Satyrus phronius* Godart, [1824] are here included in *Cissia*, and *Paryphthimoides kiliani* Anken, 1999 is a new synonym of *C. eous*. Neotypes of *Euptychia moneta* Weymer, 1911, *Satyrus phronius* and *Euptychia eous* are designated, as well as the lectotypes of *Neonympha pompilia* C. Felder & R. Felder, 1867, *Euptychia usitata* Butler, 1867, *Euptychia pieria* Butler, 1867, *Neonympha thelete* Snellen, 1887 and *E. erigone* f. *proba* Weymer, 1911. Also provided are comparative diagnoses, historical systematic catalogues, information on type material, descriptions and illustrations of the male and female genitalia, comments on intraspecific variations, sexual dimorphism, host plants and biology for all species, as well as maps with distributional records, and some comments on biogeography. A key for species identification and an updated checklist of the genus are given. A detailed analysis of female genitalic structures of *Cissia* is herein presented for the first time.

Key words. Amazonian Forest, biogeography, dry forest, Euptychiina, morphology, Pampa, *Paryphthimoides*, savanna, seasonal polyphenism, taxonomy.

Introduction

Cissia Doubleday, 1848 was described without any diagnosis, including *Cissia clarissa* (Cramer, 1782) (type species), *C.* (?) *crantor* (Fabricius, 1791) and six more unknown species (Table 1). Currently, *Cissia* comprises 17 species all restricted to the Neotropical region, as follows: *C. cleophes* (Godman & Salvin, 1889), *C. confusa* (Staudinger, 1887), *C. joyceae* Singer, DeVries & Ehrlich, 1983, *C. labe* (Butler, 1870), *C. lesbia* (Staudinger, [1886]), *C. moneta* (Weymer, 1911), *C. myncea* (Cramer, 1780), *C. palladia* (Butler, 1867), *C. penelope*

(Fabricius, 1775) (**syn.**: *Papilio clarissa*), *C. pompilia* (C. Felder & R. Felder, 1867), *C. proba* (Weymer, 1911), *C. pseudoconfusa* Singer, DeVries & Ehrlich, 1983, *C. similis* (Butler, 1867), *C. terrestris* (Butler, 1867), *C. themis* (Butler, 1867), *C. maripa* Brévignon, 2005 and *C. touloulou* Benmesbah, 2015 (Lamas 2004; Brévignon 2005; Benmesbah 2015).

Species of *Cissia* are easily recognized by the yellowish patch in the submarginal region on the ventral forewing that can varie in size and intensity among the recognized species. This feature led to most of the species of *Cissia* to exhbit great convergence in appearance with some other species of Euptychiina, such as *Inbio hilara* (C. Felder & R. Felder, 1867), *Magneuptychia agnata* (Schaus, 1913), *M. drymo* (Schaus, 1913) and *M. fugitiva* Lamas, [1997]. In museum collections it is not unusual to find specimens of these taxa mixed, reflecting their current complex and confusing taxonomy.

The first systematic hypothesis including some species of this genus was proposed by Butler (1867a) (Table 1), who placed them in "Division 1" of *Euptychia* Hübner, 1818 characterized by 1) DW brown, rarely flecked with purple scales, 2) DHW often with a developed subanal ocellus, 3) VW pale with serial ocelli, submedian and median lines present with median line rarely absent. In the following year, in his "Catalogue of Diurnal Lepidoptera", Butler (1868) erected the "Section *Megisto*" without diagnostic characters for this category, and included 102 species, 10 of them are currently treated in *Cissia*, as follows: *E. clarissa, E. crantor* (Fabricius, 1793), *E. myncea, E. palladia, E. pieria, E. pompilia, E. similis, E. terrestris, E. themis* and *E. usitata* (Table 1). Butler (1877) proposed the "*Euptychia ocypete* species group" to allocate 31 species that he considered allied to each other by their wing phenotypes (Table 1). Among them, eight species, now placed in *Cissia*, were included: *E. labe* Butler, 1870, *E. myncea, E. palladia, E. terrestris, E. penelope, E. themis, E. usitata, E. undina* Butler, 1870.

Mostly based on slight characters of the wing coloration and venation, Godman & Salvin (1879–1901) divided the genus *Euptychia* in eight groups, namely from "a" to "h". The **"Group d"** characterized by the "wings of male opaque brown, of female paler, the markings of the underside sometimes showing faintly above; upper discocellular of primaries very short, directed outwards, middle discocellular strongly convex" (p. 78) and comprised by 17 species, including *E. labe, E. pieria, E. terrestris* and *E. similis*; the three former were allocated in the **"subgroup a"**, defined by the "first subcostal branch emitted before the end, the second at the end of the cell" (p. 78), while *E. similis* belonged to the **"subgroup b"**, characterized by the "first subcostal branch of primaries emitted before the end of the cell, the second beyond it" (p. 81).

Weymer (1910-1913) arbitrarialy propose the **"*ocypete* group"** comprising 36 species,

some of them not cited in Butler (1877). However, Weymer considered all the *Cissia* species previously cited by Butler, and did the following considerations on their specific status: 1) *E. pieria*, *E. pompilia* and *E. thelete* are treated as forms of *E. usitata*, 2) *E. themis* and *E. undina* as forms of *E. similis*, and 3) *E. pytheus* as a form of *E. penelope* (Table 1).

Later, Forster (1964) proposed two new genera, *Argyreuptychia* and *Vareuptychia*, to include the above mentioned species and others (Table 1). *Argyreuptychia* is composed by 10 species, among which stand out *A. penelope, A. proba, A. labe, A. palladia, A. pytheus, A. moneta* Weymer, 1911 and *A. lesbia* Staudinger, [1886], being characterized by its "small size when compared to *Megeuptychia* Forster, 1964 and *Magneuptychia* Forster, 1964, silvery eyespots in M_2-M_3 and M_3-CuA_1 on ventral hind wings, slender uncus, and short and narrow aedeagus (Forster 1964: 123). In contrast, *Vareuptychia,* composed only by *V. similis* and *V. usitata*, was erected due the "differences in the male genitalia structures when compared to the closely related genus *Argyreuptychia* and the completely different drawing running straighter and the coloration of the wing underside" (Forster 1964: 125).

Althought Forster did not provide detailed description of the male genitalia (but illustrated its only), when comparing his illustrations of *V. similis* and *V. usitata* (p. 125, figs 145-146) the only character that is apparently shared by both species is the cornutal patches on the aedeagus. On the wing element pattern cited by Forster, it is likely the author was reffering to the median and/or submedian line(s) straighter than the others on wings underside. In general, the limits of most of the genera of Euptychiina proposed by Forster are broad, with no clear distinguished diagnostic characters.

However, two important points must be considered here: 1) studying only Bolivian specimens, Forster ignored the existence of *Cissia* Doubleday, 1848, a genus with the same type species that he had choose for *Argyreuptychia*, and 2) the closest relationship between *Argyreuptychia* and *Vareuptychia*. The first point was prompt fixed by Miller (1968) who placed *Argyreuptychia* as a synonym of *Cissia*, a decision posteriorly followed by Singer *et al*. (1983) and Lamas (2004). When describing the diagnostics characters to Euptychiini (= Euptychiina), Miller cited that *Cissia* species are characterized by having spiny midtibia differing from the remaining genera of the tribe with a slight spiny one (p. 91).

Fifteen years later, Singer *et al*. (1983) provided the first taxonomic revision of *Cissia* and proposed the last major systematic hypothesis to this genus (Table 1). Only considering species from Costa Rica and Trinidad, the authors concluded the *Cissia* species do not have clear differences on their wings patterns and male genitalia (Singer *et al.* 1983: 106). In that study, *Cissia* was mainly defined based on immatures morphological features, which led the

authors to subdivided the genus in four subgroups, as follows: 1) "*labe* subgroup" – comprising *C. labe*, *C. palladia* and *C. penelope*; 2) "*confusa* subgroup" – *C. myncea*, *C. confusa* and *C. pseudoconfusa*; 3) "*gomezi* subgroup" – only *C. gomezi* Singer, DeVries & Ehrlich, 1983; and 4) "subgroup incertis" – *C. drymo* Schaus, 1913, *C. agnata* Schaus, 1913 and *C. joyceae* Singer, DeVries & Ehrlich, 1983 (Table 1).

In his illustrated catalogue, D'Abrera (1988) treated all species in *Euptychia,* disregarding Forster's work. The Neotropical butterflies catalogue (Lamas 2004) follows Miller (1968) and Singer *et al*. (1983), but also included eight more species in *Cissia*: *C. cleophes, C. lesbia, C. moneta, C. pompilia, C. proba, C. similis, C. terrestris* and *C. themis* (Table 1). In addition, Lamas (2004) transferred *C. agnata, C. drymo* and *C. gomezi* to *Magneuptychia* Forster, 1964, and recognized *Cissia ucumariensis* Andrade, 1991 to a junior synonym of *Euptychoides griphe* (C. Felder & R. Felder, 1867) (currently *Graphita griphe*). The Lamas'(2004) taxonomic arrangement is the most accepted today, with *Cissia* comprising 15 species (Table 1). Recently, only two Amazonian species from French Guiana has been described in *Cissia, C. maripa* Brévignon, 2005 and *C. touloulou* Benmesbah, 2015, and no other taxonomic arrangement has been made to the genus until this research paper.

Considering that the taxonomy of *Cissia* remains poorly understood and out of date since the 1900's, in addition to the great phenotypical similarities of its species related to other euptychiines butterflies, the purpose of the present paper is to give the first step towards a detailed taxonomic revision of *Cissia*.

Material and Methods

There were examined about 1325 specimens, including all available types, from 20 public and private collections. The following acronyms are used throughout the text, and the collections not personally examined are marked below with an asterisk:

AN	Andrew Neild collection, London, United Kingdom
BM	Booth Museum, Brighton, United Kingdom*
CMNH	Cleveland Museum of Natural History, Cleveland, United States*
DD	Diego R. Dolibaina collection, Paraná, Brazil
DZUP	Coleção Entomológica Pe. Jesus de Santiago Moure, Universidade Federal do Paraná, Paraná, Brazil
FD	Fernando M. S. Dias collection, Paraná, Brazil.

IML	Instituto Miguel Lillo, Tucumán, Argentina
IOC	Instituto Oswaldo Cruz, Rio de Janeiro, Brazil
MB	Mohamed Benmesbah collection, Toulouse, France
MNHN	Muséum national d'Histoire naturelle, Paris, France
MTD	Senckenberg Museum für Tierkunde, Dresden, Germany*
MZUJ	Muzeum Zoologiczne Uniwersytetu Jagiellonskiego, Krakow, Poland
NHMD	Natural History Museum of Denmark, Copenhagen, Denmark*
NHMUK	Natural History Museum, London, United Kingdom
RA	Ralf H. Anken collection, Germany*
RMNH	Rijksmuseum voor Natuurlijke Historie, Leiden, Netherlands*
USNM	Smithsonian National Museum of Natural History, Washington, D. C., United States*
ZMHU	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany
ZSBS	Zoologische Staatssammlung München, Munich, Germany*
ZUEC	Museu de Zoologia da Universidade Estadual de Campinas, São Paulo, Brazil

The repository of the photos of all types known taken by Gerardo Lamas (Museo de Historia Natural Universidad Nacional Mayor de San Marcos, Peru) available in Butterflies of America website (Warren *et al.* 2016) was consulted. For further methodological and terminology information, see Chapter 1.

Results

Based on the redefinition of *Cissia* given herein, only three species remains in the genus: *C. penelope* (= *C. moneta* **syn. n.**), *C. proba* and *C. pompilia*. Additionally, two species previously treated in *Paryphthimoides* Forster, 1964 by Lamas (2004), *Euptychia eous* Butler, 1867 and *Satyrus phronius* Godart, [1824], are transferred to *Cissia.*

The remaining species previously considered as *Cissia* (Lamas 2004; Brévigon 2005; Benmesbah 2015) will be treated in a forthrcoming paper dedicated to describe new genera of Euptychiina and proposing new combinations (see Chapter 4).

***Cissia* Doubleday, 1848**

Cissia Doubleday, 1848: 33; type-species *Papilio clarissa* Cramer, 1775, by monotypy. – Hemming, 1967: 116. – Miller, 1968: 92; **syn.** *Argyreuptychia*. – Singer *et al*. 1983: 101. – Lamas, 2004: 218; **syn.**: *Vareuptychia*. – Peña *et al*., 2006: 31.

Argyreuptychia Forster, 1964: 123; type-species *Papilio penelope* Fabricius, 1775, by original designation.

Diagnosis. Compared to all other Euptychiina genera, the species of *Cissia* are characterized by the following characters: (1) eyes glabrous (hairy in *Paryphthimoides*, *Magneuptychia* and *Vareuptychia* **stat. rest.**); (2) VFW with a developed ocellus in R_{4+5}-M_1 with one or two pupils; (3) DHW with a developed ocellus in CuA_1-CuA_2 with two pupils; (4) VHW with a developed ocellus in Rs-M_1 and other similar in CuA_1-CuA_2, both with two pupils; silvery elongated incomplete ocelli in M_2-M_3 and M_3-CuA_1 or very reduced; (5) VFW and VHW with submarginal and marginal crenulated lines, being the former well-characterized in shape (Fig. 6); (6) FW discal cell about 2/3 length of wing (base to apex); (7) FW with r-m_1 vein reduced, m_1-m_2 concave, m_2-m_3 straight (Fig. 21), approximately 2,5 times the length of the m_1-m_2; (8) FW with m-cu vein between M_3-CuA_1 shorter than m_2-m_3, cubitus without strong basal dilatation (Fig. 21); (9) HW with origin of M_1 closer to Rs (Fig. 21); (10) male with the 8th abdominal tergite slightly sclerotized, with a well-sclerotized ring at the basal margin; (11) female with the 8th sternite elliptical or lanceolated; (12) uncus arched downwards, smoothly dilated or straight at the median region in dorsal view, apex facing down (Fig. 23); (13) gnathos hook-like in lateral view, varying between ½ to 2/3 the length of uncus; (14) valva with apex wide or pointed, and always serrated (Fig. 23); (15) anterior region of the aedeagus bottle-shaped (Fig. 27), posterior region longer than the anterior region, posterior region with bifid apex in dorsal view (Fig. 27), cornuti absent; (16) lamella antevaginalis with lateral expansions and orbicular or obovate in ventral view (Fig. 48); (17) ductus bursae membranous; (18) paired signa.

Discussion. *Cissia* was erected by Doubleday (1848), with no description or diagnosis, to include *C. clarissa* (Cramer, 1782), *C.* ? *crantor* (Fabricius, 1793) and six more undetermined species (Table 1). *Papilio crantor* Fabricius, 1793 is currently considered as junior synonym of *C. myncea* (Cramer, 1780) (Lamas 2004), and Doubleday (1848) was unsure on its position in *Cissia.* Godart ([1823]) considered *Papilio clarissa* as a junior synonym of *Papilio penelope* (Fabricius, 1775), being that proposal followed by Scudder (1875) and Hemming (1967)

Dyar ([1903]) placed in *Cissia* the Neartic species *Papilio cymela* Cramer, 1777

(replacement name to *Papilio eurytus* Fabricius, 1775), *Euptychia rubricata* Edwards, 1871, *Neonympha mitchelli* French, 1889 and *Papilio sosybius* Fabricius, 1793; the two former are currently placed in *Megisto* Hübner, [1819], and the latter belongs to *Hermeuptychia* Forster, 1964. Barnes & Lindsey (1922) suggested that *Megisto* must be used to replace *Cissia*, based on the Scudder's (1875) work that treated *Papilio penelope* Fabricius, 1775 and *Papilio eurytus* Fabricius, 1775 in *Cissia*.

Despite its existence, the genus *Cissia* was forgotten in literature for 120 years, being resurrected by Miller (1968), and properly described by Singer *et al.* (1983). During the 19th-20th centuries, virtually all Euptychiina species were described and allocated in *Euptychia* Hübner, 1818, especially after the Butler's significant contribution to the group (Butler 1867a). This scenario was changed when Forster (1964) erected 33 genera to reallocate all those species, even though his study was mainly based in Bolivian fauna. Among these genera stands out *Argyreuptychia* Forster, 1964, with eight species (Table 1), and basically defined by its silvery eyespots in M_2-M_3 and M_3-CuA_1 on ventral hind wings, and male genitalia with a slender uncus, and short and narrow aedeagus (Forster, 1964). Nevertheless, as well pointed out by Miller (1968), and confirmed by Singer *et al*. (1983), *Argyreuptychia* must not be considered a valid genus, but a junior synonym of *Cissia* because they are bearing the same type-species, *Papilio penelope*.

Singer *et al.* (1983) provided a valuable contribution, and the first attempt to review the genus *Cissia*. However, this study was restricted to the species from Costa Rica and Trinidad. Some taxonomic problems concerning the type materials were solved, and three new species were described, *C. gomezi* Singer, DeVries & Ehrlich, 1983, *C. pseudoconfusa* Singer, DeVries & Ehrlich, 1983 and *C. joycea* Singer, DeVries & Ehrlich, 1983. Immature stages of some species of *Cissia* were also examined, and the authors proposed a new definition to the genus based on the presence of four larval instars in all species of this group. This proposal was followed by Lamas (2004) with some modifications (detailed in "Introduction" section). Posteriorly, two species more from the Amazon region were described in *Cissia* (Brévigon 2005; Benmesbah 2015) totalling 17 species to the genus.

Checklist of *Cissia*

Cissia Doubleday, 1848

Argyreuptychia Forster, 1964

Cissia penelope (Fabricius, 1775)

Papilio clarissa Cramer, 1782

Euptychia moneta Weymer, 1911 **syn. n.**

Cissia pompilia (C. Felder & R. Felder, 1867)

Euptychia usitata Butler, 1867

Euptychia usitata var. *pieria* Butler, 1867

Euptychia usitata var. *pompilia* C. Felder & R. Felder, 1867

Neonympha thelete Snellen, 1887

Euptychia usitata var. *thelete* Weymer, 1911

Cissia proba (Weymer, 1911)

Cissia eous (Butler, 1867) **comb. n.**

Paryphtimoides bahneri Anken, 1994 **syn. n.**

Paryphtimoides kiliani Anken, 1999 **syn. n.**

Cissia phronius (Godart, [1824]) **comb. n.**

Key to species of *Cissia*

1. VW with well-marked dark brown scattered dots at the submarginal region (Fig.2); VHW with one developed incomplete silvery ocellus in Rs-M_1 (Fig. 2) … *C. penelope* (Figs 1-4)

- VW without dark brown scattered dots (or, if present, just a few and faded); VHW with one complete silvery ocellus in Rs-M_1 (or, if incomplete, is always small) …2

2. VW with submedian and median lines straight (Fig. 6) … 3

- VW with submedian and median lines crenulated (Fig. 14) … 4

3. VW without umbra (or, if present it is almost the same colour as the ground colour); VW with a narrow median line … *C. pompilia* (Figs 5-8)

- VW with umbra darker than the ground colour; VW with a wide median line (approximately 1 mm) … *C. proba* (Figs 8-12

4. DHW with developed and well-marked ocellus at CuA_1-CuA_2 (Fig. 13); VHW with outer margin crenulated along its all extension; VHW with developed ocelli at M_1-M_2 and CuA_1-CuA_2 (in general, with a well-marked ochre ocellar ring)… *C. eous* (Figs 13-16)

- DHW with reduced or absent ocellus at CuA_1-CuA_2; VHW with outer margin slightly crenulated and pronounced at CuA_1; VHW with reduced ocelli (in general, noticed only by the silvery pupils and the pale ocellar ring) … *C. phronius* (Figs 17-20)

***Cissia penelope* (Fabricius, 1775)** (Figs 1-4, 21-22, 23-27, 48-49, 58-61, 73, 76-77)

Papilio penelope Fabricius, 1775: 493; syntype: America. – Fabricius, 1793: 96. – Singer *et al*., 1983:

110, fig. 4D; neotype: America [Surinam]; NHMD. – Miller, 1968: 93. – Zimsen, 1964: 515.

Papilio clarissa Cramer, 1782: pl. 293, figs D, E; syntype: Suriname. – Singer *et al*., 1983: 110; neotype: Suriname; NHMUK (examined); **syn.** *P. penelope*. – Miller, 1968: 92. – Lamas, 2004: 218.

Euptychia clarissa; Hübner, 1816: pl. 54. – Westwood, 1851 *in* Doubleday: 373. – Butler, 1867a: 462. – Butler, 1868: 16.

Satyrus penelope; Godart, [1823]: 489.

Cissia clarissa; Doubleday, 1848: 33.

Neonympha clarissa; Herrich-Schäffer, 1864: 59.

Euptychia penelope; Kirby, 1871: 48. – Möschler, 1877: 323. – Butler, 1877: 118. – Kirby, 1879: 134. – Sharpe, 1890: 568. – Kaye, 1904: 179. – Weymer, 1911: 200, pl. 47b. – Aurivillius 1929: 158. – Gaede, 1931: 459. – Barcant, 1970: 143, 161, pl. 13, fig. 10 (male). – Wesley & Emmel, 1975: 24, 30. – D'Abrera, 1988: 772 (male). – Emmel & Austin, 1990: 10. – Vargas-Zapata *et al*., 2011: 51.

Argyreuptychia penelope; Forster, 1964: 123. – Lewis, 1973: pl. 54, fig. 2.

Cissia penelope; Miller, 1968: 123. – Singer *et al*., 1983: 110-111. – Ackery, 1988: 114, table 9. – Mielke & Casagrande, 1992: 181. – Singer & Ehrlich, 1993: 252. – Lamas, 1994a: 165. – Brown & Hutchings, 1997: 106. – Lamas, [1997b]: 65. – Mielke & Casagrande, 1998: 468. – Wood & Gillman, 1998: 609, 613. – T. Racheli & L. Racheli, 1998: 111. – DeVries & Walla, 1999: 347. – Ramos, 2000: 40. – T. Racheli & L. Racheli, 2001: 213-380. – Lamas, 2003: appendix 3, 203. – Lande *et al*., 2003: 153. – Lamas, 2004: 218. – Murray & Prowell, 2005: 69. – Brown *et al*., 2007 (appendix): 10. – Pinheiro & Emery, 2007: 72. – Beccaloni *et al*., 2008: 329. – Brévignon 2008: 72. – Kaminski & Freitas, 2008: 171. – Barlow *et al*., 2009: 174-178. – Marín & Uribe, 2009: 25. – Marín *et al.*, 2009: 242. – Mielke *et al*., 2010: 289. – Peña *et al*., 2010: 246. – Salazar *et al*., 2011: 166. – Willmott *et al*., 2011: 2, fig. 15 (male). – Casagrande *et al*., 2012: 25. – Montero & Ortiz, 2013: 58. – Cock, 2014: 11. – Garwood, 2014: 24, figs 253-254. – Garwood, 2015: 57, figs 727-729. – Garwood & Jaramillo, 2016: 107, figs 1219-1222.

Euptychia moneta Weymer, 1911: 200, pl. 47b; neotype herein designated: [French Guiana] Cayenne; NHMUK; **syn. n.** – Gaede, 1931: 455.

Euptychia maepius [misidentification]; Lewis, 1973: pl. 58, fig. 10.

Cissia moneta; Lamas, 2004: 218.

Diagnosis. *Cissia penelope* has a well-characterized feature in the wing element pattern that makes easy its identification when compared to any other Euptychiina species: the dark brown scattered dots on ventral wings at the submarginal region between R_5-CuA_2 in VFW and Rs-CuA_2 in VHW. Additionaly, the VHW has three silvery incomplete ocelli, one in Rs-M_1, the second in M_2-M_3 and the third in M_3-CuA_1. The VHW submarginal and marginal lines are

irregular and thin, turning themselves wide between 2A and the tornus.

Male genitalia (Figs 23-27). Tegumen slightly flattened, laterally subtriangular; uncus arched downward, about two times length of tegumen, covered by small setae, smoothly dilated at median region in dorsal view, apex laterally curved downwards and dorsally truncated; gnathos hook-like, wide at base and tapering at apex, varying between 1/2 and 2/3 length of uncus; combination of ventral arm of tegumen and dorsal arm of saccus slightly sinuous; appendix angularis short; anterior projection of saccus developed, cylindrical, and almost same length as gnathos; fultura inferior present; fultura superior absent; valva sub-rectangular covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa developed and sub-squared, dorsal margin slightly projected at median region, ventral margin slightly projected at median region, apex wide and serrated; aedeagus straight, shorter than valva, cylindrical, anterior region bottle-shaped, posterior region about two times longer than anterior region with bifid apex in dorsal view, distal opening ventral and longer than proximal opening.

Female genitalia (Figs 48-49). 8th tergite rectangular; papilla analis somewhat triangle covered by long hairy-like setae at distal region, apophysis posterior short; lamella antevaginalis fused to lamella postvaginalis with one spiracle located at upper margin of lateral expansions of lamella antevaginalis; lamella postvaginalis obovate in ventral view; ductus bursae membranous; corpus bursae about same length as ductus bursae, with paired signa dorsally.

Variation. In general, males are smaller (FW length: 17–20 mm) than females (FW length: 18–22 mm), and have the FW outer margin straight (rounded in females). The subapical ocellus on the DFW is larger in females than in males, as well as the VFW yellowish-ochre patch is more developed in females. Weymer (1911) indicated that the absence of the silvery pupil at the apical ocellus on VFW was a good indication to distinguished males from females, but it is observed that feature is variable in both sexes. The width of the median and submedian lines on ventral wings are intraspecifically variables. The median line on VHW can be strongly concave in CuA_2-2A, close to the inner margin. Sometimes, those three silvery incomplete ocelli located in R_5-M_1, M_2-M_3 and M_3-CuA_1 on VFW are faded, although it can be possible to see these elements by moving the specimens against the light. Ocelli ring coloration is variable between pale-ochre to golden or orange. Some structures of the male genitalia can be intraspecifically variable, such as the concavity degree at the superior region of the gnathos, anterior portion of saccus varying between straight and smoothly curved upwards, and the anterior region of the aedeagus being straight or slightly curved downward.

Distribution. This species is restrict to South America and Caribe occurring in Colombia, Ecuador, Peru, Bolivia, Venezuela, Guyana, Surinam, French Guiana and Brazil, and has been

recorded in the islands of Dominican Republic and Trinidad, mainly in association with Amazon and Atlantic forests, but can be found in dry forests (Fig. 77). *Cissia penelope* is common and widely distributed in the cis-Andean region, with only one record (Garwood & Jaramillo 2016) to the river Cauca valley, between the Ocidental and Central Cordilleras in Colombia. It is found from sea level to about 2000 m. From species phenotypically similar, *Cissia penelope* is sympatric in (1) Colombia and Ecuador with *C. pompilia* and *C. proba*; (2) Venezuela – *C. pompilia*; (3) Brazil, Peru and Bolivia – *C. proba*. It is syntopic with *C. proba* in Meta and Putumayo (Colombia), Napo and Orellana (Ecuador), Amazonas, Acre, Maranhão, Mato Grosso and Rondônia (Brazil), Junín, Loreto and Madre de Dios (Peru), and Santa Cruz (Bolivia). New records of *C. penelope* are reported to (1) Cundinamarca and Putumayo (Colombia), (2) Venezuela, (3) Goiás, Maranhão and Tocantins (Brazil), (4) Amazonas, Madre de Dios and San Martín (Peru), (5) Santa Cruz (Bolivia).

Although Cock (2013: 83) draw attention that specimens collected by Ralph du Boulay Evans in Trinidad could be mislabelled (eg.: male specimen at NHMUK – voucher number BMNH(E) 1421881) and may came from the western Venezuela or Curaçao, there were other specimens of *C. penelope* from Trinidad collected by naturalists, such F. Birch, T. T. Dyer and A. Hall that confirm the occurrence of this species in this island. Also other publications confirm this (e.g. Kaye 1921; Barcant 1970; Singer *et al.* 1983; Singer & Ehrlich 1993).

Biology and phenology. *Cissia penelope* flies in forest edge, avoiding deep shade in forests (Singer *et al.*, 1983), and has been considered an indicator of disturbed areas (Singer & Ehrlich 1993; Brown & Hutchings 1997; Wood & Gillman 1998; Ramos 2000; Lande *et al.* 2003). This species is multivoltine and flies during all year around (Fig. 73). It is also attracted by bait traps (Mielke & Casagrande 1992; Brown & Hutchings 1997; Casagrande *et al.* 2012).

Host plants and immature stages. Larvae of *Cissia penelope* have been recorded feeding in *Cyperus* L. and *Seleria* B. (Poales, Cyperaceae), and some species of Poaceae, such as *Ichnanthus pallens* (Sw.), *Lasiacis sloanei* (Griseb.), *Panicum pilosum* Sw., *P. polygonatum* Schrad., *Paspalum conjugatum* P. J. Bergius, *Pasp. decumbens* Sw., *Setaria paniculifera* (Steud.), and *Tripsacum* sp. (Singer *et al*. 1983; Ackery 1988; Beccaloni *et al.* 2008). Only few information about the immature stages is found in Singer *et al*. (1983) and DeVries (1987).

Type material, lectotypes designation and taxonomic history. *Papilio penelope* Fabricius, 1775 was described based on an unstated number of specimens from a non precise locality in "America", collected by Drury. Singer *et al*. (1983) designated the neotype of *Papilio penelope* Fabricius, 1775 (Fig. 58). This specimen bears the following labels: /*Penelope* ex. Am: Ma: Schmid', ex Sehested & Tonder Collection [handwritten]/ Mus. Leh. e T. L. [handwritten]/

NEOTYPE *Papilio penelope* Fabricius, 1775, Singer *et al*., 1983: 110 [red label]/ photographed [handwritten] R. I. Vane-Wright. 197/8/. NHMD.

Papilio clarissa Cramer, 1782 was described based on an unstated number of specimens from Surinam in Stoll's collection. Godart ([1823]) noted that *P. clarissa* is a junior synonym of *P. penelope*, and treated it in *Satyrus* Latreille, 1810. The neotype female of *Papilio clarissa* Cramer, 1782 (Fig. 59) was also designated in Singer *et al*. (1983), and it has the following labels: /N° 110. CLARISSA. Cr[amer]. IV. 293. D. E. [handwritten]/ Linnep. Surin[ame]. [handwritten]/ FELDER COLL[ECTIO]N./ Rothschild Bequest B. M. 1939-1/ NEOTYPE/ *Papilio clarissa* Cramer NEOTYPE det. R. I. Vane-Wright 1983/. NHMUK.

Euptychia moneta Weymer, 1911 was described based on an unstated number of specimens from Cayenne, French Guiana (Fig. 60). Syntypes of *E. moneta* were not found after an exhaustive search at ZMHU, ZSBS and MTD, where the Weymer's type material are deposited (Nekrutenko 2001; Pyrcz 2006; G. Lamas and O. H. H. Mielke *pers. comm.*). Among the Weymer's types deposited at the ZSBS, it was found one specimen identified as *E. moneta* from "San Ramons [sic] [Junín]", Peru (Fig. 61), but it was collected in 1956 by F. König, 45 years after the original description of this species. Several of the Weymer's types were lost after the World War II, and neotype's designations seens necessary for many species to define their nominal taxon objectively and clarify their taxonomic status, such as in *E. moneta*. Herein it is designated the male neotype of *Euptychia moneta*, which agrees with the original illustration provided by Weymer; this specimens has the following labels: /Cayenne/ Ex Oberthür Coll. Brit. Mus. 1927–3./ BMNH(E) #786267/; and two others will be added later: /Neotypus/ Neotypus *Euptychia moneta* Weymer, 1911. T. Zacca, det. 2016/. NHMUK. The last two labels will be sent to the curator later.

Furthermore, *E. moneta* is proposed as a new synonym of *C. penelope* based on that no other similar looking specimens of *E. moneta* have been found in French Guiana or surrounded countries, even though some researches have been conducting extensive field works in these areas (A. Neild and M. Benmesbah, *pers. comm.*), and no inventories there have documented this species (eg.: Brévignon 2005; Brévignon & Benmesbah, 2012). It is very likely the specimen used to describe *E. moneta* by Weymer is an aberrant form of *C. penelope*, as already suggested in Brévignon (2008: 71).

Remarks. Forster (1964) erected the genus *Argyreuptychia* to include *E. penelope* and six more species, based on morphological characters of the male genitalia and some additional wings features, such as the ever-present silvery marked ocelli on the VHW. However, this species was automatically replaced in *Cissia* Doubleday, 1848 when Miller (1968) revalidated this genus

(see detailed discussion in "Introduction").

Examined material. 289 males and 183 females (12 specimens dissected). GUATEMALA – *no specific locality*: 1 male, no data, A. Hall *leg*. (BM). COLOMBIA – *no specific locality*: 1 male, 1 female, no data, Moritz *leg*., 3322 (ZMHU), 1 female, no data, Kalbreyer *leg*. (ZMHU); *Cundinamarca*: Bogotá, 2 males, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421204, BMNH(E) 1421235* (NHMUK), 1 male, IX.1897, Dr. Bürger *leg*., BMNH(E) 1421266* (NHMUK); *Meta*: Villavicencio, 1 male, 26.VI.[no year], Lary *leg*., Mallet Coll. BMNH(E) 2011-63 aq., BMNH(E) 1421694 (NHMUK), 1 male, VII.[no year], BMNH(E) 1421818 (NHMUK), Villavicencio, Bosque Bavaria, 500-700 m, 1 male, 3 females, 14.XII.2014, Mielke, Carneiro & Henao *leg*., DZ 33.773, DZ 33.772, DZ 33.771, DZ 33.770 (DZUP); Villavicencio, La Cuncia, 750-850 m, 1 male, 1 female, 13.XII.2014, Mielke, Carneiro & Henao *leg*., DZ 33.769, DZ 33.768 (DZUP); *Putumayo*: Villagarzón, Mocoa, 1 male, 17.VI.1977, J. Mallet *leg*., Mallet Coll. BMNH(E) 2011-63 aq., BMNH(E) 1421786 (NHMUK), 1 male, 18.VI.1977, BMNH(E) 1421817 (NHMUK), 1 male, 23.VIII.[no year], BMNH(E) 1421849 (NHMUK), 400 m, 2 males, 1 female, 9.III.2013, T. Pyrcz *leg*. (MZUJ). ECUADOR – *Napo*: Tena, ca 450 m, 1 male, VIII.1956, J. Förster *leg*. (ZSBS); *Pastaza* – Santa Clara, 800 m, 1 female, 21.IV.1998, K. Jansinki *leg.* (MZUJ), Shell-Mera, 1 female, no data, local dealer *leg*. (MZUJ); *Orellana*: half-way between Pompeya-Reventador, 500 m, 1 male, 5.III.2007, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421848 (NHMUK), Coca [Puerto Francisco de Orellana], 1 female, IV.1985, Onore *leg*., DZ 27.888 (DZUP), Yasuní, Tiputini River, Rain Forest, 229 m, 00 40.446'S 076 23.860'W, 1 male, 1 female, 1.III.2007, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1422001 (NHMUK), Km 46 on Napo road, Open ground, 6 males, 6 females, 3.III.2007, BMNH(E) 1421847, BMNH(E) 1421878, BMNH(E) 1421909, BMNH(E) 1421754, BMNH(E) 1421940, BMNH(E) 1421785, BMNH(E) 1421816, BMNH(E) 1422002, BMNH(E) 1421971, BMNH(E) 1421693, BMNH(E) 1421910 (NHMUK). PERU – *Amazonas*: Rodriguez de Mendoza, 3 males, 2 females, [no month].2003, B. Calderon *leg*. (MZUJ); *Chanchamayo*: 1 male, no data, H. Whitely *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 786224 (NHMUK), 1 male, 1 female, 1892, O. Schanckle *leg*., ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786227, BMNH(E) 786241 (NHMUK), Yavero River, 1 female, VI.1950, Koepcke *leg*. (ZSBS); San Ramón, 700 m, 1 male, 1.IV.1956, J. König *leg*. (ZSBS). *Cuzco*: Callanga, 1500 m, 1 female, [no month].1898, O. Garlepp *leg*. (ZMHU); Hillapani [Illapani Viejo, Echarete], 1 male, 1 female, ex-coll. Staudinger 1901, ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786226, BMNH(E) 1421742 (NHMUK); *Huánuco*: Huallaga River, Janqui[?], 1 male, X.1934, F. Klug *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421300 (NHMUK); Tingo Maria, 800 m, 3 males, 21-24.VIII.1971, C. & M. Vardy *leg*., B. M. 1971-533, BMNH(E) 1421787, BMNH(E) 1421819, BMNH(E) 1421850 (NHMUK); *Junín*: La Merced, 800 m, 1 male, 2 females, VII-VIII.1903, Watkins & Tomlinson 1904-133, BMNH(E) 786216, BMNH(E) 786238, BMNH(E) 786239 (NHMUK), Pampa Hermosa, Chanchamayo River, 1300-1350 m, 1 male, 1 female, 31.V.2002, T. Pyrcz *leg*. (MZUJ), Colorado River, 2500 ft., 1 male, 1 female, VI-VIII.1903, Watkins & Tomlinson *leg*., BMNH(E) 786225*, BMNH(E)

786240* (NHMUK); *San Martín*: Tarapoto, 1 female, V-VIII.1885, M. de Mathan *leg*., ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786242 (NHMUK). BOLIVIA – *Santa Cruz*: Buena Vista, 750 m, 1 female, VIII.1906-IV.1907, Steinbach *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420806 (NHMUK); Sara, 2 females, III-IV.1904, J. Steinbach *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420837, BMNH(E) 1420961 (NHMUK), 3 females, V.1904, BMNH(E) 1420868, BMNH(E) 1420899, BMNH(E) 1420930 (NHMUK). VENEZUELA – *no specific locality*: 1 male, no data, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 786328 (NHMUK); *Bolívar*: Suapure River, 2 males, 3 females, 3.II.1899, S. Klages *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421208, BMNH(E) 1421239, BMNH(E) 1421270*, BMNH(E) 1421332, BMNH(E) 1420713 (NHMUK), 1 male, 23.II.1899, BMNH(E) 1420775 (NHMUK), 1 male, 25.II.1899, BMNH(E) 1420682 (NHMUK), 1 male, 1.III.1899, BMNH(E) 1420744 (NHMUK), 1 male, no data, BMNH(E) 1421301* (NHMUK). TRINIDAD – *no specific locality*: 4 males, 3 females, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421295, BMNH(E) 1421326, BMNH(E) 1421017, BMNH(E) 1421048, BMNH(E) 1421296, BMNH(E) 1421327, BMNH(E) 1421049 (NHMUK), 1 male, no data, BMNH(E) 786286 (NHMUK), 1 male, no data, ex-Grose Smith, 1910, BMNH(E) 786302 (NHMUK), 2 males, no data, Broadway *leg*., BMNH(E) 786287, BMNH(E) 786288 (NHMUK), R. Stanway Parris, 2 males, 1 female, II.1921, Rothschild Bequest B. M. 1939-1., BMNH(E) 1421233, BMNH(E) 1421264, BMNH(E) 1421265 (NHMUK), 1 male, no data, Dr. F. W. Jackson *leg*., BMNH(E) 1421906 (NHMUK), 1 male, Ralph du Boulay Evans B. M. 1934-29, BMNH(E) 1421881 (NHMUK); *Mayaro*: 1 female, 10.I.1924, Dr. S. A. Neave *leg*., Pres. by Imp. Inst. Ent. B. M. 1937-75, BMNH(E) 1421908 (NHMUK); *Port of Spain*: Caparo Valley, 1 female, XI.1896, Dr. Rendall *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421203, 1 male, XII.1896, BMNH(E) 1421110; 1 male, 2 females, I. 1897; BMNH(E) 1421079, BMNH(E) 1421234, BMNH(E) 1421018 (NHMUK), 3 males, 1 female, F. Birch *leg*., Joicey Bequest B. M. 1934-120, BMNH(E) 786301, BMNH(E) 786290, BMNH(E) 1421992, BMNH(E) 1421898 (NHMUK), Maraval, 2 males, 4 females, VII.1891, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421141, BMNH(E) 1421172 , BMNH(E) 1421080, BMNH(E) 1421111*, BMNH(E) 1421142, BMNH(E) 1421173 (NHMUK), 1 male, no data, Joicey Bequest B. M. 1934-120, BMNH(E) 786289* (NHMUK), 1 male, 1 female, XI.1931-II.1932, A. Hall *leg*. (BM); Fondes Amandes Valley, 1 female, 5.V.1993, BMNH(E) 1421943 (NHMUK); *Saint George*: 1 male, 1 female, XII.1891, C. W. Ellacombe *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421019, BMNH(E) 1421145 (NHMUK); *Sangre Grande*: 1 male, II.1922, T. T. Dyer *leg*., Joicey Bequest B. M. 1934-120, BMNH(E) 786285 (NHMUK). GUYANA – *no specific locality*: 1 male, 2 females, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421174, BMNH(E) 1421021, BMNH(E) 1421176 (NHMUK), 4 males, 1 female, no data, Joicey Bequest B. M. 1934-120, BMNH(E) 786254, BMNH(E) 786255, BMNH(E) 786256, BMNH(E) 1421927(NHMUK), 2 males, 3 females, no data, Parish *leg.*, ex-Grose Smith, BMNH(E) 1421896, BMNH(E) 1421928, BMNH(E) 1421897, BMNH(E) 1421835, BMNH(E) 1421804 (NHMUK), 1 female, 21.IV.1904, Joicey Bequest B. M. 1934-120, BMNH(E) 1421958 (NHMUK), 3 males, 2 females, no data, ex-Bartlett

Coll. B. M. 1946-60, BMNH(E) 1421877, BMNH(E) 1421846, BMNH(E) 1421999, BMNH(E) 1421968, BMNH(E) 1421937 (NHMUK); *Berbice*: 1 female, 1819, Rothschild Bequest B. M. 1931-9, BMNH(E) 1421205 (NHMUK); *Cuyuni-Mazaruni*: Omai mine, 1 male, 1 female, W. Schaus, 1905-244, Rothschild Bequest B. M. 1939-1, BMNH(E) 786252, BMNH(E) 786270 (NHMUK), 1 female, ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421866 (NHMUK), Carimang, 1 female, no data, H. Whitley *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 786279 (NHMUK), Kutari River, 1 female, 15.XI.1935, G. A. Hudson, B. M. 1936-360, BMNH(E) 786271 (NHMUK); *Essequibo*: Bartica, 3 males, 2 females, III-IV.1901, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421297, BMNH(E) 1421328, BMNH(E) 1421237, BMNH(E) 1421268, BMNH(E) 1421114 (NHMUK), 1 male, II.1936, A. Hall *leg*. (BM), 1 male, III.1936, Booth Mus: Collection 005939 (BM), 2 males, 2 females, no data, H. S. Parish *leg.*, BMNH(E) 1421050, BMNH(E) 786272, BMNH(E) 786274, BMNH(E) 1421990 (NHMUK), Kaieteur Falls, 1 male, II-III.1936, A. Hall *leg*. (BM), Essequibo River, 2 females, no data, BMNH(E) 1421299, BMNH(E) 1421330 (NHMUK), Demerara River, 2 males, 5 females, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421112, BMNH(E) 1421143, BMNH(E) 1421298, BMNH(E) 1421329, BMNH(E) 1421052, BMNH(E) 1421083, BMNH(E) 1421207 (NHMUK), 1 male, ex-Grose Smith 1910, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421710 (NHMUK), Hog Island, 1 male, 18-19.II.1971, S. J. Patel *leg*., BM 1973-376, BMNH(E) 1421911 (NHMUK); *Mabaruma*: 2 males, 2 females, XII.1929-I.1930, A. Hall *leg*. (BM); *Potaro-Siparuni*: 1 female, 3-9.VII.1912, Dr. P. Rendall *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421236 (NHMUK); *Rupununi*: Nappi, Kanuku Mountains, 1 male, 1 female, 18.X.1935, J. G. Myer *leg*., BMNH(E) 786253, BMNH(E) 1421959 (NHMUK). *Demerara-Mahaica:* Timehri rocks, 6°30'N 53°10'W, 1 male, 25.I.1981, J. Mallet *leg*., Mallet Coll. BMNH(E) 2011-63 aq., BMNH(E) 1421725 (NHMUK); *Waratila* Creek – tribute of Kamuni Creek, 1 male, 1 female, 17.II.1971, S. J. Patel *leg*., BM. 1973-376, BMNH(E) 1421970, BMNH(E) 1421723 (NHMUK), 1 male, 18.II.1971, BMNH(E) 1421692 (NHMUK). SURINAM – *no specific locality*: 1 male, no data, no collector, 3321 (ZMHU), 1 female, no data, ex-Coll. Möschl. (ZMHU), 2 males, 2 females, no data, ex-coll. Fruhstorfer, Fruhstorfer Coll. B. M. 1937-285, BMNH(E) 786276, BMNH(E) 786277, BMNH(E) 786257, BMNH(E) 786258 (NHMUK); *Berg-en-Dal*: 3 males, IV.1892, C. W. Ellacombe, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421084, BMNH(E) 1421115, BMNH(E) 786262 (NHMUK); *Brokopondo*: Bersaba [Berseba], 1 male, IX.1898, Michls. *leg*. (ZMHU); *Paramaribo*: 1 female, I.1892, C. W. Ellacombe *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 786280* (NHMUK), 1 male, XII.1892, BMNH(E) 1421177 (NHMUK), 2 males, VII.1902, Pênard *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421053, BMNH(E) 1421146 (NHMUK), 6 males, 3 females, X-XI.1922, T. T. Dyer *leg*., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 786259, BMNH(E) 786278, BMNH(E) 786273, BMNH(E) 786260, BMNH(E) 786261, BMNH(E) 1421711, BMNH(E) 1421680, BMNH(E) 1421743, BMNH(E) 1421681 (NHMUK). FRENCH GUIANA – *no specific locality*: 5 males, 1 female, no data, ex-coll. C. Bar, ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786266, BMNH(E) 786283, BMNH(E) 1421926, BMNH(E) 1421741, BMNH(E) 1421865,

BMNH(E) 1421834 (NHMUK), 2 males, 2 females, Joicey Bequest Brits. Mus. 1927-3, BMNH(E) 1421957, BMNH(E) 1421988, BMNH(E) 1421803, BMNH(E) 1421772 (NHMUK), 1 male, no data, R. Krüger *leg*. (ZSBS); *Cayenne*: 1 female, no data, no collector (ZMHU), 3 males, no data, ex-coll. C. Bar, ex-coll. Deyrolle, Godman-Salvin Coll. 1904-1, BMNH(E) 786263, BMNH(E) 786279 (NHMUK), 3 males, 2 females, no data, ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786265, BMNH(E) 786267, BMNH(E) 786281, BMNH(E) 786282, BMNH(E) 1421895 (NHMUK); *Kourou*: Kourou River, 1 female, VIII.1905, E. Le Moult *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421267 (NHMUK); *Saint-Laurent-du-Maroni*: 1 male, 1899-1901, Le Moult, ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786268 (NHMUK), 1 male, ex-Antonio Garre 1923, ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421679 (NHMUK), 1 male, IX.[no year], ex-Le Moult Coll., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421972 (NHMUK), 1 female, X.[no year], BMNH(E) 1421941 (NHMUK). BRAZIL – *Acre:* Cruzeiro do Sul, Rio Juruá, 200 m, 1 male, 20-30.III.1973, H. Ebert *leg*., DZ 27.805 (DZUP), 1 female, VII.1973, DZ 27.799 (DZUP), 1 male, 5.VIII.1973, DZ 27.802 (DZUP), 2 males, 10-18.II.1976, DZ 27.798, DZ 27.804 (DZUP), 1 female, 18-31.III.1979, DZ 27.296 (DZUP), 1 male, 3.VIII.1979, DZ 27.797 (DZUP), Pentecostes, Japiim, 7°38’10”S 72°48’17”W, 1 female, 8.V.2011, Mielke & Casagrande *leg*., DZ 29.474 (DZUP), Mâncio Lima, Parque Nacional Serra do Divisor (Sede), Rio Moa, 7°26’52”S 73°39’55”W, 1 female, 20-27.XI.2013, Mielke, Casagrande, Carneiro, Dias & Dolibaina *leg*., DZ 29.550 (DZUP), 2 females, 23-30.VIII.2014, Mielke, Casagrande, Carneiro, Dias, Siewert & Salik *leg*., DZ 32.626, DZ 32.646 (DZUP), Porto Acre, Reserva Humaitá, 5 females, 28-31.VII.2008, Mielke & Casagrande *leg*., DZ 32.688, DZ 32.678, DZ 32.668, DZ 32.638, DZ 32.606 (DZUP), 9°73’S 67°68’W, 2 males, 1 females, 28-30.I.2009, DZ 32.608, DZ 32.648, DZ 32.658 (DZUP), Santa Rosa do Purus, 6,4 km E, 1 male, 3-4.VIII.2008, Mielke & Carneiro *leg*., DZ 27.807 (DZUP), Senador Guiomard, Reserva Catuaba, 1 male, 23-27.VII.2008, Mielke & Casagrande *leg*., DZ 32.598, DZ 32.616 (DZUP), 200 m, 10°4’27”S 67°37’17”W, 1 female, 27.VII-5.IX.2011, Dolibaina & Moura *leg*., DZ 32.636 (DZUP), Tarauacá, 250 m, 2 males, 25.IX.1972, H. Ebert *leg*., DZ 27.800, DZ 27.801 (DZUP); *Rondônia*: Jaru, 1 female, III.1976, H. Ebert *leg*., DZ 27.818 (DZUP), 16°27’S 62°28’W, 250 m, 4 males, 2 females, 4-12.XI.1977, Gifford & Negrett *leg*., DZ 27.806, DZ 27.808, DZ 27.809, DZ 27.811, DZ 27.812, DZ 27.819 (DZUP), 1 female, V.1977, H. Ebert *leg*., DZ 27.816 (DZUP), Ouro Preto do Oeste, 1 male, 18.VI.1978, A. Raw *leg*., DZ 27.813 (DZUP), Pimenta Bueno, 1 female, V-VI.1970, no collector, DZ 27.810 (DZUP), Riozinho, 200 m, 1 male, 1 female, 7.II.1972, Mielke & Brown *leg*., DZ 27.814, DZ 27.815 (DZUP), 2 males, 9.VII.1972, Mielke & Brown *leg*., DZ 27.807, DZ 27.821 (DZUP), Vilhena, 1 male, 13.XI.1986, C. Elias *leg*., DZ 27.817 (DZUP), 1 female, 23.X.1986, C. Elias *leg*., DZ 27.822 (DZUP); *Amazonas*: Barcelos, Rio Aracá, Foz do Rio Curuduri, 0°05’50”S 63°17’22”W, 3 males, 1 female 15-19.VI.2010, Mielke & Casagrande *leg*., DZ 32.655, DZ 32.645, DZ 32.628 (DZUP), Ipixuna, Com. S. Vicente, Rio Liberdade, 7°21’47”S 71°52’07”W, 1 male, 12-15.V.2011, Mielke & Casagrande *leg*., DZ 32.598 (DZUP), Itacoatiara, 35 km Manaus road, 1 female, 25.VI.1978, A. Raw *leg*., DZ 27.793 (DZUP), Manaus, 1 male, no data, Hahnel *leg*. (ZMHU), 1 male,

1-3.IX.1913, E. H. W. Wickham *leg*., BMNH(E) 786243 (NHMUK), 2 males, no data, B. Piffard *leg*., BMNH(E) 786228, BMNH(E) 786229 (NHMUK), 1 male, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421238 (NHMUK), Reserva Duque, 1 female, 1.VII.1981, Mielke & Casagrande *leg*., DZ 27.791 (DZUP), 47 km NW, 2°35' S 60°12'W, Res. ZF2, 2 males, 1 female, 17-20.VIII.2010, Dias & Bonfantti *leg*., DZ 29.477, DZ 29.478, DZ 29.479 (DZUP), Maués, 1 female, no data, Hahnel *leg*. (ZMHU), Nhamundá, Rio Nhamundá, Igarapé Igreja, 1°35'11"S 57°37'04"W, 1 male, Mielke & Casagrande *leg*., DZ 27.795 (DZUP), Tefé, 1 female, no data, Hahnel *leg*. (ZMHU); Uaupés [São Gabriel da Cachoeira], 1 female, 27.IV.1951, Padre Falco *leg*., DZ 27.790 (DZUP), 1 female, 11.V.1951, DZ 27.794 (DZUP), 1 female, 10.VII.1951, DZ 27.792 (DZUP); *Roraima*: Alto Alegre, Ilha de Maracá, 1 male, 3 females, 24-31.VIII.1987, Mielke & Casagrande *leg*., DZ 27.820, DZ 27.786, DZ 27.785, DZ 27.784 (DZUP), 1 male, 21-26.V.1988, Mielke & Casagrande *leg*., DZ 27.783* (DZUP), Amajari, Tepequén, 620 m, 2 males, 14-16.VII.2009, Mielke & Casagrande *leg*., DZ 29.488 DZ 29.489 (DZUP), Boa Vista, 2 males, VII.1971, Kesselring *leg*., DZ 27.787, DZ 27.789 (DZUP), 1 male, VII.1972, DZ 27.788 (DZUP); *Amapá*: Porto Grande, 2 males, 1 female, 3-18.XII.2014, F. Dias *leg*. (FD), 2 males, 13-27.IX.2014, F. Dias *leg*. (FD), Serra do Navio, 1 male, 1.X.1957, K. Lenko *leg*. (IOC), 100 m, 5 males, 3 females, XI.1959, H. Ebert *leg*., DZ 27.823, DZ 27.824, DZ 27.825, DZ 27.826, DZ 27.827, DZ 27.828, DZ 27.829, DZ 27.830 (DZUP), 1 female, 12.IX.1963, ex-coll. D'Almeida, DZ 27.831 (DZUP), 1 male, 17.IX.1963, DZ 27.832 (DZUP), 2 males, 23-25.VII.2007, Mielke & Casagrande *leg*., DZ 32.647, DZ 32.615 (DZUP), 1 male, 2 females, 28.VII.2007, Mielke & Casagrande *leg*., DZ 32.677, DZ 32.627, DZ 32.595 (DZUP), 3 males, 1 female, 29.VII.2007, Mielke & Casagrande *leg*., DZ 32.687, DZ 32.617, DZ 32.625, DZ 32.605 (DZUP), 1 male, 31.VII.2007, Mielke & Casagrande *leg*., DZ 32.635 (DZUP), Assentamento, 2 males, 4 females, 30.VII.2007, Mielke & Casagrande *leg*., DZ 32.597, DZ 32.607, DZ 32.637, DZ 32.657, DZ 32.667, DZ 32.665 (DZUP), Santana, Porto de Santana, 1 female, 3.IX.1963, ex-coll. D'Almeida, DZ 5.308* (DZUP); *Pará*: 1 male, no data, Seiber *leg*., 3320 (ZMHU), 1 male, no data, Hahnel *leg*. (ZMHU), 1 female, no data, Wallace *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 786245 (NHMUK), 3 males, 2 females, no data, H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 786230, BMNH(E) 786231, BMNH(E) 786232, BMNH(E) 786246, BMNH(E) 786247 (NHMUK), 1 male, 1 female, no data, A. M. Moss *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421269, BMNH(E) 1421051 (NHMUK), 2 males, no data, H. W. Bates *leg*., BMNH(E) 786233, BMNH(E) 1421836 (NHMUK), 3 males, no data, ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786234, BMNH(E) 786235, BMNH(E) 1421712 (NHMUK), 1 female, 1893, Stuart *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421082 (NHMUK), 1 female, no data, Pres. by G. Graham, 45-144, BMNH(E) 786248 (NHMUK), 2 males, no data, M. de Mathan *leg*., ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786249, BMNH(E) 1421867 (NHMUK), 1 female, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421774 (NHMUK), 1 female, 4° Trim. 1892, Albert Schulz *leg*., ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421991 (NHMUK), Belém, 2 males, 31.VII.1936, ex-coll. D'Almeida, DZ 27.836, DZ 27.848 (DZUP), 1 male, 6.II.1938, DZ 27.845 (DZUP), 1 male,

25.XI.1942, no collector (ZSBS), 1 male, 7.IX.1954, Cambridge University Amazon Expedition 1954, BM 1954-687, BMNH(E) 1421756 (NHMUK), Utinga, 2 females, 4.VIII.1936, ex-coll. D'Almeida, DZ 27.833, DZ 27.842 (DZUP), 1 female, 5.VIII.1936, DZ 27.846 (DZUP), 1 male, 23.VII.1936, DZ 27.847 (DZUP), 1 female, 7.V.1951, ex-coll. H. Ebert, DZ 27.838 (DZUP), 1 male, 4.VI.1959, ex-coll. A. Cardoso, DZ 29.481 (DZUP), 1 male, 25.XI.1959, DZ 27.844 (DZUP), Benevides, Neópolis, 3 males, 1 female, 2.II.2010, Carneiro, Dolibaina, Dias & Moreira *leg*., DZ 29.482, DZ 29.483, DZ 29.484, DZ 29.485 (DZUP); Colares, 1 female, 5.II.2010, Carneiro, Dolibaina, Dias & Moreira *leg*., DZ 29.490 (DZUP), Bragança, 1 male, no data, ex-Oberthür Coll. Brist. Mus. 1927-3, BMNH(E) 786237 (NHMUK), Cuminá, Rio Cuminá, Cachoeira do Tronco, 1 male, 24.VIII.1936, ex-coll. D'Almeida, DZ 27.839 (DZUP), 1 female, 28.X.1936, DZ 27.843 (DZUP), Gurupá, 2 males, [illegible data], ex-coll. H. Ebert *leg*., DZ 27.835, DZ 27.837 (DZUP), Igarapé-Açu, 2 females, 1905, W. Hoffmanns *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421113, BMNH(E) 1421144 (NHMUK), Itaituba, 1 female, [no month].[18]86, Hahnel *leg*. (ZMHU), Itaituba-Óbidos, 1 male, I-IV.1906, W. Hoffmanns *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421331 (NHMUK), Itaituba, 2 males, I.1962, ex-coll. H. Ebert, DZ 27.840, DZ 27.841 (DZUP), Juruti, 1 female, IV.1905, M. de Mathan *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421020 (NHMUK), Marabá, Redenção, km 125, 1 male, 6.IX.1978, Gifford *leg*., DZ 27.870 (DZUP), Óbidos, 1 female, 1907, M. de Mathan *leg*., ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786244 (NHMUK), 1 female, XII.1968, J. Kesselring *leg*., DZ 27.849 (DZUP), 1 male, XII.1972, DZ 27.834 (DZUP), Oriximiná, Porto Trombetas, 1 female, 7.XII.1978, A. Raw *leg*., DZ 27.889 (DZUP), Santa Bárbara do Pará, 2 males, 1 female, 2-3.II.2010, Carneiro, Dolibaina, Dias & Moreira *leg*., DZ 29.486, DZ 29.487, DZ 29.480 (DZUP), Santarém, 1 female, no data, ex-Grose Smith 1910, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421805 (NHMUK); *Tocantins*: Ilha do Bananal, 5 km N sede, 1 male, 26.VI.1979, Gifford *leg*., DZ 27.886 (DZUP); *Maranhão*: 2 males, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421175, BMNH(E) 1421206 (NHMUK), 1 male, 1 female, no data, T. Belt *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 786236, BMNH(E) 786250 (NHMUK); Caxias, 1 male, 17.IV.2012, Mielke & Casagrande *leg*., DZ 32.618 (DZUP), Feira Nova do Maranhão, 26 km E, Fazenda Forquilha dos Brejos, 1 female, 13-16.IV.2011, DZ 29.383 (DZUP), 2 males, 28.X-4.XII.2010, Mielke & Carneiro *leg*., DZ 29.381, DZ 29.382 (DZUP), 07°00'29"S 46°26'30" W, 3 males, 1 female, 14-21.VIII.2011, Mielke *leg*., DZ 27.866, DZ 27.868, DZ 27.869, DZ 27.875 (DZUP), 1 male, 1 female, 15-25.II.2012, O.-C. Mielke *leg*., DZ 27.876, DZ 27.878 (DZUP), 30 km W, 470 m, 2 males, 18-23.I.2010, Mielke *leg*., DZ 29.475, DZ 29.476 (DZUP), Imperatriz, 1 male, 15.XII.1972, Exc. Dept. Zoologia, DZ 27.877 (DZUP), 1 male, 18.XII.1972, DZ 27.879 (DZUP), 1 male, 22.XII.1972, DZ 27.871 (DZUP), 1 female, 5.VII.1974, DZ 27.873 (DZUP), 1 male, 1 female, 6.VII.1974, DZ 27.881, DZ 5.307* (DZUP), 1 female, 11.VII.1974, DZ 27.880 (DZUP), 1 male, 17.VII.1974, DZ 27.865 (DZUP), 1 male, 18.VII.1974, DZ 27.874 (DZUP), 1 male, 13.XII.1979, DZ 27.867 (DZUP), Maracaçumé, Montes Áureos Gold mineralization, 1 female, no data, T. Belt *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 786251 (NHMUK), Santa Luzia, Açailândia-Santa Luzia road,

km 108, 1 male, 3.VIII.1974, Mielke *leg*., DZ 27.872 (DZUP), São Luís, 1 male, 18.XI.1977, ex-coll. Gifford, DZ 27.864 (DZUP), 1 female, 19.XI.1977, DZ 27.863 (DZUP); *Ceará*: Santa Quitéria, Fazenda Lambedor, 1 male, 24.IV.2005, A. Pessoa *leg*., DZ 37.939 (DZUP); *Mato Grosso*: 6 males, 3 females, 1886, P. Germain *leg*., ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786295, BMNH(E) 786296, BMNH(E) 786304, BMNH(E) 1421022, BMNH(E) 786316, BMNH(E) 786305, BMNH(E) 786306, BMNH(E) 1421929, BMNH(E) 1421930 (NHMUK), Chapada dos Guimarães, 2 males, I.[no year], H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 786299, BMNH(E) 786307 (NHMUK), 1 male, III.[no year BMNH(E) 786297 (NHMUK), 1 male, VIII.[no year], BMNH(E) 786298 (NHMUK), Buriti, 600 m, 1 female, 25.VI.1972, Mielke & Brown *leg*., DZ 27.860 (DZUP), 1 male, 27.VI.1972, DZ 27.855 (DZUP), Barra do Bugres, Alto Rio Paraguai, 150 m, 2 males, 26-29.VI.1974, H. & H. D. Ebert *leg*., DZ 27.862, DZ 27.858 (DZUP), 1 female, 25.VIII.1974, DZ 27857 (DZUP), Barra do Garças, 1 male, 17.IV.1978, ex-coll. Gifford, DZ 27.861 (DZUP), Cárceres, 1 female, 18.XI.1984, Buzzi, Mielke, Elias & Casagrande *leg*., DZ 27.851 (DZUP), Cuiabá, 1000 ft., 3 males, 11-19.V.1927, C. L. Collenete *leg*., Joicey Bequest Brist. Mus. 1934-120, BMNH(E) 786293, BMNH(E) 786294, BMNH(E) 786291 (NHMUK), Diamantino, Melguira, 10 miles S, 2000 ft., 1 male, 1 female, 23.V-3.VI.1927, C. L. Collenete *leg*., BMNH(E) 786292, BMNH(E) 786303 (NHMUK), Tombador, 16 miles S of Diamantino, 450 m, 1 male, 4-6.VI.1927, C. L. Collenette *leg*., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421960 (NHMUK), Alto Rio Arinos, Fazenda São João, 300-400 m, 2 males, 1 female, VII.1975, H. & H. D. Ebert *leg*., DZ 27.850, DZ 27.856, DZ 27.854 (DZUP), 3 males, 1-8.VIII.1974, DZ 27.853, DZ 27.859, DZ 27.852 (DZUP), Nova Xavantina, Bacaba, UNIMAT, 1 female, 17-19.VIII.1997, Mielke *leg*., DZ 29.380 (DZUP); *Goiás*: Goiás, 1 male, XII.1976, Gifford *leg*., DZ 27.887 (DZUP), 1 female, I.1977, D. Gifford *leg*., DZ 27.882 (DZUP), 15.57S 50.3W, 1 male, 6.II.1980, DZ 27.883 (DZUP), Iporá, 22 km W, 420 m, 1 female, 21.VI.1972, Mielke & Brown *leg*., DZ 27.884 (DZUP).

***Cissia pompilia* (C. Felder & R. Felder, 1867)** (Figs 5-8, 28-32, 50-51, 62-69, 74, 77, 78)

Neonympha pompilia C. Felder & R. Felder, [25.IV].1867: 479; syntypes: [Colômbia] Bogotá and Mexico. Lectotype herein designated: [Colômbia] Bogotá; NHMUK (examined).

Euptychia usitata Butler, [30.IV].1867a: 463, pl. 39, fig. 2; syntypes: Venezuela and Guatemala. Lectotype herein designated: Venezuela; NHMUK (examined). – Butler, 1868: 17. – Kirby, 1871: 48. – Butler & Druce, 1874: 336. – Kirby, 1879: 132. – Weymer, 1890: 35. – Weymer, 1911: 201, pl. 47e. – DeVries, 1987: 272, pl. 48, figs. 22-23 (male) [misidentification]. – D'Abrera, 1988: 773 (female). – Santini, 2004: 1056.

Euptychia pieria Butler, 1867a: 463, pl. 39, fig. 3; syntype: Honduras. Lectotype male here designated: Honduras; NHMUK (examined). – Butler, 1868: 17. – Butler, 1870: 252. – Kirby, 1871: 48. – Butler & Druce, 1874: 336. – Godman & Salvin, 1880: 79–80. – Weymer, 1890: 9. – Godman, 1901 *in* Godman & Salvin: 654.

Neonympha thelete Snellen, 1887: 18, pl. 1, fig. 3; lectotype: [Venezuela] Curaçao; RMNH (examined).

Euptychia usitata f. *pieria*; Butler, 1870: 252. Weymer, 1911: 201.

Euptychia usitata f. *pompilia*; Weymer, 1911: 201, pl. 47e.

Euptychia usitata f. *thelete*; Weymer, 1911: 201

Vareuptychia usitata; Forster, 1964: 125, fig. 146 (male genitalia). – Ackery, 1988: 115, table 9. – Lewis, 1973: 65, fig. 9. – Austin *et al.* 1996: 33.

Vareuptychia pieria; Llorente-Bousquets *et al*., 1986: 24.

Cissia usitata pieria; Raguso & Llorente-Bousquets, 1991: 132.

Cissia usitata; Meerman & Boomsma, 1993: 42.

Cissia pompilia; Luis-Martínez *et al*., 1995: 119. – Lamas, 1996: 53. – Lamas, 2003: appendix 3, 203. – Lamas, 2004: 218; **syn.**: *usitata, thelete*. – Luis-Martínez *et al*., 2004: 349. – Beccaloni *et al*., 2008: 329. – Pozo *et al*., 2008: 415. – López, 2009: 28. – Marín & Uribe, 2009: 25. – Marín *et al*., 2009: 237. – Balam & León, 2010: 531. – Luis-Martínez *et al*., 2011: 23. – Marín *et al*., 2012: 209. – Miller *et al*., 2012: 58. – Garwood, 2014: 58, figs 742-746. – Garwood, 2015: 38, figs 448-453. – Garwood & Jaramilo, 2016a: 107, figs 1223-1228. – Garwood & Jaramilo, 2016b: 103, figs 1155-1160. – Luis-Martínez *et al*., 2016: 214.

Vareuptychia usitata pieria; Pozo *et al*., 2003: 516.

Diagnosis. Compared to all species of *Cissia*, *C. pompilia* closely resemble *C. proba* (Weymer, 1911) by its wing shape and element pattern, but can be distinguished of that by its paler ground color on both ventral wings, the narrower submedian and median lines and their brown mixed with ochre scales.

Male genitalia (Figs 28-32). Tegumen slightly flattened in dorsal view, laterally subtriangular; uncus arched downwards, about two times the length of the tegumen, covered by small setae, no dilated at the median region, apex curved downwards and truncated in dorsal view; gnathos hook-like, half the length of the uncus; combination of the ventral arms of tegumen and dorsal arms of the saccus straight; appendix angularis short and curved downwards; anterior projection of saccus developed, cylindrical, and longer than the gnathos; fultura superior absent; fultura inferior present; valva sub-rectangular covered by long hairy-like setae latero-ventrally, and short ones at the inner side, costa developed and rectangular, dorsal margin slightly projected at the median region, ventral margin slightly projected at the median region, apex pointed and serrated; aedeagus straight, as long as the valva, cylindrical, anterior region bottle-shaped, posterior region about two times longer than the anterior region with bifid apex in dorsal view, distal opening ventral and longer than the proximal opening.

Female genitalia (Figs 50-51). 8th tergite rectangular; papilla analis somewhat triangle covered by long hairy-like setae at the distal region, apophysis posterior absent; lamella antevaginalis

fused to lamella postvaginalis with one spiracle located at the upper margin of its lateral expansions; lamella postvaginalis orbicular in ventral view; ductus bursae membranous; corpus bursae varying between equal to half the length of the ductus bursae, with a short paired signa dorsally.

Variation. In general, females are larger (FW length: 20–22 mm) than males (FW length: 17–21 mm) and have a small subapical ocellus in M_1-M_2 on DFW. Females of *C. pompilia* can have small ocelli in R_{4+5}-M_1, M_2-M_3 and M_3-CuA_1 on DFW and others similar in M_1-M_2, M_2-M_3, M_3-CuA_1 and CuA_2-2A on DHW. If males have one ocellus in M_1-M_2 on DFW, it is never larger than that in females. A few specimens collected during the wet seasons showed extremally developed ocelli on VW (Figs 66-69). Some structures of the male genitalia can be variable, such as the shape of the tegumen varying between flattaned and slightly convex in lateral view, and the length of the anterior projection of the saccus.

Distribution. This species is widely distributed throughout Central America to northern South America, where it is restricted to Colombia, Venezuela and Ecuador (Fig. 78). *Cissia pompilia* is found in both rain and dry forests, especially along forest egdes, but was also documented in second-growth vegetation, riparian forests and pastures (DeVries *et al.* 1997; López & Mcneelly 2009). The altitudinal range known of *C. pompilia* is up to 760 m (Godman & Salvin 1901: 80; DeVries 1987), but several individuals were found at higher elevations in Colombia (eg.: Boyacá and Cundinamarca). *Cissia pompilia* is documented here for the first time to El Salvador, Venezuela and Ecuador. It is sympatric with *C. penelope* in Colombia, Venezuela and Ecuador, being syntopic in Titiribí, Antioquia (Colombia). New records of *C. pompilia* are reported to (1) Toledo (Belize), (2) Baja Verapaz (Guatemala), (3) Tegucigalpa (Honduras), (4) Jinotega (Nicaragua), (5) Coclé, Pedro Miguel and Veraguas (Panama), and (6) Boyacá, César, Cundinamarca.

Biology and phenology. The highest abundance peak of *C. pompilia* was registered to October, in the Calakmul region, Campeche, Mexico (Pozo *et al.* 2008), and its low abundance in January, May and June, althought this species occurs throughout all the year. In Honduras, *C. pompilia* was documented only in the rainy season, between May-September (Miller *et al.* 2012). Individuals have also been captured by bait traps in Honduras (Meerman & Boomsma 1993) (Fig. 74).

Host plants and immature stages. Recorded larval host plants include species of *Eleusine* Gaertn. (Chloridoideae, Poaceae) (DeVries 1987; Ackery 1988; Santini 2004; Beccaloni *et al.* 2008). The only information on the immature stages is found in DeVries (1987).

Type material, lectotype designation and taxonomic history. *Neonympha pompilia* C. Felder

& R. Felder, 1867 was described based on unstated number of specimens from Colombia (Bogotá) and Mexico, collected by [Alexander] Lindig and [Auguste] Sallé, respectively. Four males syntypes of *N. pompilia* were found at NHMUK, two from Bogotá and two from Mexico. To fix the identity of the name, here is designated the lectotype of this taxon (Fig. 62); this specimen has the following labels: /TYPE/ Bogotá, Lindig, type/ *Neon.[*ympha*] pompilia* Feld/ = *Euptychia pieria* Butler (1866)/ Type of *N. pompilia* Feld[er] = *E. pieria* Butl[er]. comp[ared]. w[ith]. type 10.XII.12, NDR [Norman D. Riley]/ Rothschild Bequest B.M. 1939-1./ BMNH(E)#1267129/; and two others labels will be added later: /Lectotypus/ Lectotypus *Neonympha pompilia* C. Felder & R. Felder, 1867. T. Zacca det. 2016/. NHMUK. The last two labels will be sent to the curator later. The other three syntypes are here designated as paralectotypes and will be labelled accordingly.

Euptychia usitata Butler, 1867 was described based on an unstated number of specimens from Venezuela and Guatemala. Godman & Salvin (1901: 80) stated that the identity of this Venezuelan form (*E. usitata*) with *E. pieria* need further consideration, as he did not have sufficient specimens to solve this puzzle. Only one female syntype was found at NHMUK that agrees with the original description and illustration. To fix the identity of the name, this female syntype is designated herein as the lectotype of this taxon (Fig. 63); this specimen has the following labels: /TYPE/ *Euptychia usitata* Butler Monog[raphy]./ B. M. TYPE No. Rh. 3299, *Euptychia usitata* Butl[er]./ Venezuela/ Venezuela Pur[chased]. from Dyson 47-9/; and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia usitata* Butler, 1867. T. Zacca det. 2016/. NHMUK. The last two labels will be sent to the curator later.

Euptychia pieria Butler, 1867 was described based on an unstated number of specimens from Honduras. Only one male syntype was found at the NHMUK that agrees with the original description and illustration. To fix the identity of the name, this male syntype is designated herein as the lectotype of this taxon (Fig. 64); this specimen has the following labels: /TYPE/ *Euptychia pieria* Butler Monog[raphy]./ B. M. TYPE No. Rh. 3199, *Euptychia pieria* ♂ Butl[er]./ Honduras/ Honduras Pur[chased]. from Dyson 45-123/; and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia pieria* Butler, 1867. T. Zacca det. 2016/. NHMUK. The last two labels will be sent to the curator later.

Neonympha thelete Snellen, 1887 was described based on two syntypes from Curaçao Islands [Netherlands]. Snellen provided a very precise illustration of this species that undoubtedly agrees with *N. pompilia* (Fig. 65), so that *N. thelete* was correctly synonymized by Lamas (2004). The Snellen collection is currently hosted at the Naturalis Biodiversity Center, Leiden, Netherlands. Only one syntype was found there; the second syntype is probably lost (E.

G. Miracle, *pers. comm.*). Although this syntype has a lectotype label affixed by G. Lamas in 1995, it was never published. This syntype is designated herein as the lectotype of this taxon to fix the identity of the name; this specimen has the following labels: /Curaçao [Netherlands] R. P. Janson/ *Neonympha thelete* Snell. nov. sp./ Lectotype ♂*Neonympha thelete* Snellen, 1887, G. Lamas des[ignated]. 1995; and two others labels will be added later: /Lectotypus/ Lectotypus *Neonympha thelete* Snellen, 1887. T. Zacca det. 2016/. RMNH. The last two labels will be sent to the curator later.

Remarks. Plenty of confusion has been made regarding the correct date of Butler's "Monograph on the genus *Euptychia*", being considered the year of 1866 (eg.: DeVries, 1987). This topic is worthy of discussion here because it implies in a series of decisions related to the priority of the names. According to Duncan (1937), the works read in 1866 during the meeting of the "Proceedings of the Zoological Society of London" were divided in three issues, being the third issue (pages 377-645) published in April 1867. That is why the correct year of the Butler's Monograph is April, 1867, without any specific day. Lamas (1996), following Higgins (1963), clarifies that the correct data of C. Felder & R. Felder's work is 25 April, 1867, just five days before the Butler's publication. In this case, Godman (1901: 564) was wrong when he stated that *E. pieria* had priority over *N. pompilia.*

Butler (1867a) described *E. usitata* with two distinct variations, one from Venezuela and the second from Guatemala. The former had a large ocellus in M_3-CuA_1 on DHW, and the latter had a rufous median line on DW. At the same work, Butler also described *E. pieria* from Honduras. Interestingly, Butler considered *E. pieria* closely related to *E. similis* (currently *Cissia similis*, but see Chapter 4), and not to *E. usitata.* Three years later, Butler (1870) published a work entitled "On new and recently described species of diurnal Lepidoptera" reporting his own mistake when considering *E. pieria* and *E. usitata* as distinct species, and treat *E. pieria* as a simple variety of *E. usitata* (Butler, 1870: 252). Weymer (1911: 201) considered *E. pieria, E. pompilia* and *E. thelete* as forms of *E. usitata*.

The descriptions and illustrations of *N. pompilia*, *E. usitata* and *E. pieria* agree in many aspects; Lamas [1997a] concluded the same, and synonymized *E. pieria* and *E. usitata* to *N. pompilia.* These taxa differs only by the size and more marked ocelli, and the coloration of the ventral lines. After examining a large series of specimens from distinct localities in Central and South America (see full list in "Examined material"), it is possible to affirm that *C. pompilia* exhibits seasonal polymorphism, what cleary could explain all those taxonomic misinterpretations over the years. For example, despite the absence of date in the syntypes labels of *E. usitata* from Polochic Valley (Guatemala), the two specimens have a very characteristic

phenotype of the dry season, with ocelli less apparent, and weak and rufous lines on the wings underside, similar to other specimens collected between January and April (dry season) in Mexico and Nicaragua (Fig. 69). One specimen from Panama found at NHMUK, collected in July, displays a large ocelli and well-marked dark brown lines on the wings underside, similar to other specimens collected in the wet season (Figs 66-68).

Forster (1964: 125, fig.146) illustrated the male genitalia of this species (considered by him as *Vareuptychia usitata*), but the cornuti was probably erroneously illustrated in the aedeagus. In all specimens of *C. pompilia* here examined, there is no cornuti, and all others structures morphologically agree with the Forster's illustration. The absence of cornuti is one of the most important features of all species now allocated in *Cissia*.

Snellen (1887) considered *N. thelete* phenotypically similar to *E. liturata* Butler, 1867, but the wing elements are totally different between these two species, as well as the morphologies of the male and female genitalia. Recently, *E. liturata* was proposed as junior synonym of *Praefaunula armilla* (Zacca *et al.* 2016 – see also illustrations of the genitalia for comparison).

Euptychia austera Butler, 1867 (currently placed in *Yphthimoides* Forster, 1964) was described from a female [holotype] from Colombia. Unfortunately, it was not possible to dissect this specimen, being preferable at the moment only indicate this species as a possible synonym of *C. pompilia* until morphological comparison of genitalia have been done to propose a taxonomic arrangement. *Euptychia austera* is very likely an aberrant phenotype of *C. pompilia*, but no other specimens of this taxon were found in several collections examined. Also, this taxa has not been reported in Colombia (e.g. Donegan & Huertas 2005; Montero *et al.* 2009; Calero-Mejía *et al.* 2013; Rodríguez & Miller 2013; Marín *et al.* 2014). *Cissia pompilia* was not included in Singer's *et al.* (1983) revision of *Cissia*.

Examined material. 125 males and 90 females. (13 specimens dissected). MÉXICO – *no specific locality*: 1 female, no data, no collector (ZMHU), 1 male, no date, no collector, Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421682 (NHMUK), 1 male, no date, no collector, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421713 (NHMUK), 1 female, no date, no collector, Druce Coll., Godman-Salvin 1904-1, BMNH(E) 1421714 (NHMUK), 1 female, no date, no collector, Druce Coll., Ex Kaden Coll., Godman-Salvin 1904-1, BMNH(E) 1421745 (NHMUK); *Oaxaca*: San José Chiltepec, San Isidoro Naranjal, 1 female, 25.VIII.1982, Cota *leg*., DZ 28.101 (DZUP). *Tabasco*: Teapa, 1 female, I.[no year], H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421683 (NHMUK); *Veracruz*: 1 female, no data, no collector (ZMHU), Catemaco, Dos Amates, 1 female, IX.1969, no collector, DZ 5.306* (DZUP), Jalapa, 1 male, VII.[18]97, Schaus *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421695

(NHMUK), Puente Nacional, 1 male, VII.[19]39, Dr. Elsenberger *leg*. (ZSBS); *Yucatán*: Piste, 1 male, 5.VII.1959, Welling *leg*., ex-coll. H. Ebert, DZ 5.305* (DZUP), 1 male, 4.VIII.1959, DZ 28.102 (DZUP). GUATEMALA – *no specific locality*: 2 females, Ex Grose Smith, 1910, BMNH(E) 1421993, BMNH(E) 1421684 (NHMUK); *Alta Verapaz*: Cahabón, 1 female, no date, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421108 (NHMUK); Chiacam, 1 female, no date, Champion *leg*., BMNH(E) 1421170 (NHMUK), Tamahú, 1100 m, 1 male, 30.XI.[19]63, no collector, ZSM genital. prep. No Rh 403 (ZSBS), Choctum, 1 male, no date, F. D. G. & O. S. *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421231 (NHMUK); *Baja Verapaz*: Panima, 6 males, 5 females, no date, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421045, BMNH(E) 1421076*, BMNH(E) 1421107, BMNH(E) 1421138, BMNH(E) 1421324, BMNH(E) 1421015, BMNH(E) 1421046*, BMNH(E) 1421077, BMNH(E) 1421838, BMNH(E) 1421962, BMNH(E) 1421715 (NHMUK); *Izabal*: 1 male, no date, F. D. G. & O. S. *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421200 (NHMUK), Polochic Valley, 2 males, 1 female, no date, F. D. G. & O. S. *leg*., BMNH(E) 1421169, BMNH(E) 1421139, BMNH(E) 1421869 (NHMUK). BELIZE – *Cayo*: Las Cuevas Research Station, 1 male, 14.IX.2004, J. Shuey & P. Labus *leg*., DZ 37.942 (DZUP); *Toledo*: Bladen Nature Reserve, 300 m, 1 male, 12.XII.[19]98, no collector, I. S. Menzles collection BMNH(E) 2008-31, BMNH(E) 1421776 (NHMUK), Manatee Lodge, Gales Point, S of Belize, 1 male, II.1917, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421726 (NHMUK). EL SALVADOR – *San Salvador*: Illopango, 360 m, 1 female, IX-X.1926, A. Hall *leg*., Brits. Mus. 1927-240, BMNH(E) 1421325 (NHMUK); *Usulatán*: San Augustin, 1000 m, 1 male, IX-X.1926, A. Hall *leg*., Brits. Mus. 1927-240, BMNH(E) 1421262 (NHMUK). NICARAGUA – *no specific locality*: 1 male, no data, Hewitson Coll. 79-69, BMNH(E) 1421196 (NHMUK), 1 female, no data, no collector, Ex Grose Smith, 1910, BMNH(E) 1421197* (NHMUK); *Chontales*: 1 male, 1 female, no data, Janson *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421165, BMNH(E) 1421166 (NHMUK); *Jinotega*: 3400 ft, 1 male, I.1906, M. G. Palmer *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421696 (NHMUK); *Matagalpa*: 1 male, 2 females, no data, Richardson *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421134*, BMNH(E) 1421135, BMNH(E) 1421263 (NHMUK), San Ramón, 115 m, 2 males, V.1905, M. G. Palmer *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421788, BMNH(E) 1421974 (NHMUK), Escondido River, sea level, 1 male, XI-XII.1904, M. G. Palmer *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1422005 (NHMUK). HONDURAS – *no specific locality*: 1 female, no data, no collector (ZMHU), 1 female, no data, v. Schenck *leg*. (ZMHU), 1 male, no data, Wittkson *leg*. (ZMHU), 1 male, [no month].1888, Wittkson *leg.* (ZMHU), 1 female, no date, no collector, Shell Coll., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421757 (NHMUK). *Cortés*: San Pedro Sula, 1 female, no data, no collector, ex coll. Fruhstorfer, Fruhstorfer Coll. B. M. 1937-285, BMNH(E) 1421290 (NHMUK), 1 female, no date, G. M. Whitely *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421232 (NHMUK), 1 female, 5.VII.1972, Becker *leg*., DZ 28.103 (DZUP); *La Cumbre*: 1 female, 17.I.1922, J. Lienhart *leg*., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421259 (NHMUK), 1 male, 9.II.[19]22, BMNH(E) 1421746 (NHMUK);

Tegucigalpa: 1 male, 1 female, 1.XII.1920, no collector, B. M. 1921-503, BMNH(E) 1421293*, BMNH(E) 1421201* (NHMUK), 1 female, no date, no collector, Honduras Brit. Mus. 1921-503, BMNH(E) 1421294 (NHMUK). COSTA RICA – *no specific locality*: 1 male, 2 females, no date, collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421820, BMNH(E) 1421851, BMNH(E) 1421944 (NHMUK), 1 male, 1 female, no data, Coll. A. G. M. Gillott, B. M. 1929-353, BMNH(E) 1421227, BMNH(E) 1421228 (NHMUK), 1 male, no data, Van Patten *leg*., Druce Coll., Godman-Salvin Coll. 1904-1, BMNH(E) 1421258 (NHMUK); *Guanacaste*: Playa Carillo, 1 female, no date, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421882 (NHMUK); *Limón:* Puerto Limón, 1 male, 21.X.1904, M. G. Palmer Brits. Mus. 1955-876, BMNH(E) 1421913 (NHMUK); *Alajuela*: San Mateo, 1 female, no date, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421727 (NHMUK); *Cartago*: Turrialba, 8 km SE, 1 female, 11.I.2005, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421975 (NHMUK); *Heredia*: Sarapiquí, La Selva Biological Station, 50 m, 1 female, 28.III.1972, Becker *leg*., DZ 28.104 (DZUP), Volcán Poás, 1 male, 1 female, no date, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421758, BMNH(E) 1421789 (NHMUK); *La Fortuna de San Carlos*: Montana de Fuego Inn, 9 km W, 1 male, 3.I.2005, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1422006 (NHMUK); *Puntarenas*: Osa, Cerro La Union, 1 male, 3.II.2007, Michel Dottax *leg*. (MZUJ). PANAMA – *no specific locality*: 1 female, no data, Ribbe *leg* (ZMHU), 1 male, no data, no collector, Ex Grose Smith, 1910, BMNH(E) 786344 (NHMUK), 1 male, no date, no collector, ex-coll. Staudinger-123, Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421807 (NHMUK), 3 males, XII.1907, Pemberton *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421914, BMNH(E) 1421697, BMNH(E) 1421822 (NHMUK), 14 males, 8 females, no date, rec. from P. Lathy, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421759, BMNH(E) 1422007, BMNH(E) 1421853, BMNH(E) 1421884, BMNH(E) 1421915, BMNH(E) 1421698, BMNH(E) 1421946, BMNH(E) 1421729, BMNH(E) 1421977, BMNH(E) 1421760, BMNH(E) 1422008, BMNH(E) 1421791, BMNH(E) 1421854, BMNH(E) 1421885, BMNH(E) 1421699, BMNH(E) 1421916, BMNH(E) 1421730, BMNH(E) 1421761, BMNH(E) 1421978, BMNH(E) 1421792, BMNH(E) 1422009, BMNH(E) 1421823 (NHMUK), 1 male, X.1896, Rosenberg *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421947 (NHMUK), Canal Zone, 1 female, 12.X.1947, R. E. Ellison *leg*., Brit. Mus. 1948-478, BMNH(E) 1421980 (NHMUK), 1 female, 19.X.1947, BMNH(E) 1421794 (NHMUK), 1 male, 26.X.1947, BMNH(E) 1421824 (NHMUK), 1 male, IX.1947, R. E. Ellison *leg*., Brit. Mus. 1948-478, BMNH(E) 1421918 (NHMUK), Canal Zone, Arachan, 1 male, 28.IX.1947, R. E. Ellison *leg*., Brit. Mus. 1948-478, BMNH(E) 1421855 (NHMUK); Canal Zone, Forest Reserve, 1 male, 27.VII.19]7, R. E. Ellison *leg*., Brit. Mus. 1948-478, BMNH(E) 1421701 (NHMUK); *Chiriqui*: 1 female, no data, Ribbe *leg*. (ZMHU), 1 male, no data, Ribbe *leg*., ex-coll. Staudinger, Godman-Salvin 1904-1, BMNH(E) 1421042 (NHMUK), 1 female, no data, Arcé *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421321* (NHMUK), Bugaba, 1 male, 1 female, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421011, BMNH(E) 1421074 (NHMUK); *Coclé*: El Valle de Atón, 1 male, 15.III.1947, R. E. Ellison *leg*., Brit. Mus. 1948-478, BMNH(E)

1421825 (NHMUK), 1 male, 28.XII.1947, BMNH(E) 1422010 (NHMUK), 2 males, 22.II.1948, R. E. Ellison *leg*., BMNH(E) 1421732, BMNH(E) 1421763 (NHMUK); *Colón*: Lion Hill, 3 males, 1 female, no data, McLeannan *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421289*, BMNH(E) 1421320, BMNH(E) 1421043, BMNH(E) 1421900 (NHMUK), Gamboa, Matachin Island, 2 males, VII.1879, Dr. O. Thieme *leg*., Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786345, BMNH(E) 1421931 (NHMUK), Canal Zone, 700 m, 2 males, 12.VI.1924, St. George Pacific Expedition, C. L. Collenete *leg*., Brit. Mus. 1925-488, BMNH(E) 1421887, BMNH(E) 1421702 (NHMUK), Gamboa, Pipeline road, 2 males, 2 females, 24.IX.1901, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421949, BMNH(E) 1421856, BMNH(E) 1421857, BMNH(E) 1421919 (NHMUK), Soberania National Park, B-759/PIPRD, 1 male, 5.VIII.2002, no collector, MGCL-LOAN-400 (ZUEC), Gamboa road, 1 male, 6.IX.1901, M. Majerus *leg*., BMNH(E) 1421888 (NHMUK), Gamboa, banana trap STRI, 1 male, 19.IX.1901, M. Majerus *leg*., Majerus Coll. 2009-52, BMNH(E) 1422011 (NHMUK); *Pedro Miguel*: 1 male, no date, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421790 (NHMUK); *Veraguas*: 1 female, no data, Arcé *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421012 (NHMUK), 3 males, 3 females, no date, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421821, BMNH(E) 1421852, BMNH(E) 1421883, BMNH(E) 1421945, BMNH(E) 1421728, BMNH(E) 1421976 (NHMUK). COLOMBIA – *Antioquia*: Mutatá, 1 male, 5.XII.1963, no collector (ZSBS); *Boyacá*: Muzo, 1260 m, 1 female, 4.II.1957, no collector (ZSBS); *Cauca*: Popayan, 1 male, [no month].1897, no collector, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421013* (NHMUK); *Cesar*: Valle Dupar [Valledupar], 1 male, no date, F. Simons *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421075 (NHMUK); *Cundinamarca*: Bogotá, 1 male, [no month].1918, Frère Apolinnaire-Marie *leg*., Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421044 (NHMUK), 1 female, no date, Child *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421700 (NHMUK), La Mesa, 1600 m, 4 males, 1 female, 17.XII.2014, Mielke, Callaghan & Henao *leg*., DZ 33.778, DZ 33.777, DZ 33.781, DZ 33.782, DZ 33.780 (DZUP), Rio Magdalena a Bogotá, 1 male, 9.IX.1877, Dr. O. Thieme *leg*., Ex Oberthür Coll. 1927-3, BMNH(E) 1421322 (NHMUK); *Vale do Cauca*: Cali, 1 male, IX-XII.1894, Rosenberg *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421886 (NHMUK). ECUADOR – *Orellana*: Yasuni, Rio Tiputini, along road, 229 m, 00°40.446'S 76°23.860'W, 1 female, 3.III.2007, M. Majerus *leg*., BMNH(E) 1421806 (NHMUK); *Zamora*: Rio Saballinas, 1250 m, 2 males, 31.VII.1998, T. Pyrcz & J. Wojtusiak *leg*. (MZUJ). VENEZUELA – *no specific locality*: 1 female, no date, Pur. from Dyson, 46-75, Hb 75, BMNH(E) 1421261 (NHMUK); *Barinas*: near Obispos, Bosque de Caimital, 200 m, 1 male, 1.XI.1999, A. Neild *leg*. (AN); *Caracas*: 1 female, V-VI.1877, Dr. O. Thieme *leg*., Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421014 (NHMUK); *Carabobo*: Puerto Cabello, 1 female, 23.XII.[no year], no collector (ZMHU), 1 male, no data, Hahnel *leg*. (ZMHU), San Estevan Esteban, 2 males,1 female, 1° Trimestre 1877, Hahnel *leg*., Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421260*, BMNH(E) 1421291, BMNH(E) 1421323 (NHMUK), 3 males, 2 females, VI-VII.1877, BMNH(E) 1421167, BMNH(E) 1421198, BMNH(E) 1421229, BMNH(E) 1421106, BMNH(E) 1421292* (NHMUK), 1

female, no date, no collector, ex-coll. Staudinger, Godman-Salvin Coll. 1904-1, BMNH(E) 1421230 (NHMUK), 2 females, VI.1909, S. M. Klages *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421731, BMNH(E) 1421948 (NHMUK), 1 female, VII.1909, BMNH(E) 1421793 (NHMUK), near Güigüe, Sabana Grande, 650 m, 1 male, 9.X.1999, Andrew Neild *leg*. (AN); *Mérida*: Chamatal (?), 1350 m, 1 male, 19.VI.1971, H. Huber *leg*. (ZSBS), Santa Cruz de Mora, 670 m, 1 male, 1 female, 14.I.1971, H. Huber *leg*. (ZSBS); *Sucre*: Carúpano, 2 males, 1 female, XII.1891, C. W. Ellacombe *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421917, BMNH(E) 1421762, BMNH(E) 1421979 (NHMUK), El Pilar, 2 males, 3 females, no data, H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421105, BMNH(E) 1421136, BMNH(E) 1421137, BMNH(E) 1421168, BMNH(E) 1421199 (NHMUK), NE Sierra de Turimiquire, SW of Cumanacoa, track W of Las Trincheras along Rio Manzanares, 400 m, 1 male, 8.X.2002, A. Neild *leg*. (AN); *Táchira*: San Juan de Colon, 550 m, 1 male, 21.IX.1997, Andrew Neild *leg*. (AN), ca. 20 km SSE of San Cristobal, Parque Nacional El Tamá, lower Río Frío, 600 m, 1 female, 26.X.1999, A. Neild *leg*. (AN), Alto Rio Dourados, 600 m, 1 female, 23-24.XI.1991, T. Pyrcz *leg*. (MZUJ); *Trujillo*: Betijoque, La Gira, 550 m, 1 female, 12.XII.1993, Andrew Neild *leg*. (AN), 1 male, 13.XII.1993, Andrew Neild *leg*. (AN), 500 m, 1 female, 14.IV.2006, T. Pyrcz *leg*. (MZUJ); *Yaracuy*: Hacienda Guáquira, 10°19'04"N 68°39'24"W, 100-120 m, 1 female, 15-16.III.2011, M. E. Losada & A. Zubek *leg*. (MZUJ); *Zulia*: NW Zulia, appr. 20 km NW of Rosario, upper Río Palmar, track to Cerro Pelón, 1 female, 12-15.I.1999, A. Rincón *leg*., Coll. A. Neild (AN), Sierra de Perijá, 30 km W Villa de Rosario/ Las Antenas, 10°20'3"N 72°35'1"W, 1200-1250 m, 1 male, 3.IV.2011, T. Pyrcz *leg*. (MZUJ), El Tucuco, 9°49'60"N 72°52'0"W, 400 m, 12 males, 5 females, VIII.1987, T. Pyrcz *leg* (MZUJ).

***Cissia proba* (Weymer, 1911)** (Figs 9-12, 33-37, 52-53, 70, 75-76, 79)

Euptychia erigone f. *proba* Weymer, 1911: 203, pl. 47d, fig. 5; syntypes: Peru. Lectotype male herein designated: Peru; MTD (examined).

Euptychia mariameliae Hayward, 1957: 109; holotype: Bolivia, Santa Cruz; IML.

Argyreuptychia proba; Forster, 1964: 124; **syn.**: *mariameliae*.

Cissia proba; Lamas, 1991: 10. – Lamas, 1994: 165. – DeVries *et al*., 1997: 355. – Lamas, [1997b]: 65. – Lamas, 2004: 218. – Marín & Uribe, 2009: 25. – Wahlberg *et al*., 2009: table 1s (suppl.). – Mielke *et al*., 2010: 290. – Peña *et al*., 2010: 246. – Piñas-Rubio, 2010: 31, figs 233-238 (male, dorsal and ventral). – Checa *et al*., 2013: 486.

Cissia terrestris [misidentification]; Willmott *et al*., 2011: 2, fig. 16.

Diagnosis. *Cissia proba* is distinguished from its congeners by the (1) remarkable grayish-brown ground colour on VW, (2) differenciated scales that gives a "velvety texture" to the VW, (3) presence of the umbra on both VW, and (4) creamy band between the median and

submarginal bands on both VW. *Cissia proba* might be confused with *Euptychia terrestris* and *Yphthimoides maepius*, being differenciated from the former by the VHW submarginal line rounded and crenulated between M_1-CuA_2 (pointed and crenulated in *E. terrestris*), and from the latter by the presence of three rounded ocelli on VHW (five rounded ocelli in *Y. maepius*).

Male genitalia (Figs 33-37). Tegumen flattened, laterally subtriangular; uncus arched downward, about one and a half the length of the tegumen, covered by small setae, no dilated at the median region in dorsal view, apex laterally curved downwards and truncated in dorsal view; gnathos hook-like, varying between 2/3 and 1/2 the length of the uncus; combination of the ventral arms of tegumen and dorsal arms of saccus slightly sinuous; appendix angularis short; anterior projection of saccus developed, cylindrical, and almost the same length as the gnathos; fultura superior absent; fultura inferior present; valva sub-rectangular covered by long hairy-like setae latero-ventrally, and short ones at the inner side, costa developed and rectangular, dorsal margin straight at the median region, ventral margin slightly projected at the median region, apex pointed and serrated; aedeagus straight, longer than the valva, cylindrical, anterior region bottle-shaped, posterior region about two times longer than the anterior region with bifid apex in dorsal view, distal opening ventral and longer than the proximal opening.

Female genitalia (Figs 52-53). 8^{th} tergite rectangular; papilla analis somewhat oblonge covered by long hairy-like setae at the distal region, apophysis posterior short; lamella antevaginalis fused to lamella postvaginalis with one spiracle located at the upper margin of its lateral expansions; lamella postvaginalis orbicular in ventral view and extremally developed; ductus bursae membranous; corpus bursae 1 ½ the length of the ductus bursae, with paired signa dorsally.

Variation. In general, sexual dimorphism related to the wings length is not evident in *C. proba.* Females can be easily distinguished from males by having a subapical developed ocellus in M_1-M_2 on DFW. The dorsal ground colour of the wings can varyies between brown and dark brown, being ligther in some old specimens in collections. The same occurs with the creamy band between the median and submarginal bands on both VW, which can be faded in old specimens. Additionally, the length of the anterior projection of the saccus can be short (the same length of the gnathos) or large (almost the same length of the uncus), but it is always developed and cylindrical.

Distribution. This species has a trans-Andean distribution, occurring from Colombia to Bolivia, and northern to midwest Brazil (Fig. 79), from altitudes up to 1000 m. *Cissia proba* is found almost exclusively in Amazon rainforest, but there are some records from xerophytic vegetation in Bolivia and northern-midwestern Brazil. From the species phenotypically similar, *Cissia*

proba is sympatric in (1) Colombia and Ecuador with *C. penelope* and *C. pompilia*, (2) Peru, Bolivia and Brazil with *C. penelope*, being syntopic with the latter in Napo and Orellana (Ecuador), Loreto, Tambopata and La Merced (Peru), Buenavista, Santa Cruz de la Sierra (Bolivia), and all those Brazilian states previously cited. New records of *C. proba* are reported to (1) Colombia, (2) Orellana (Ecuador), (3) Amazonas and Chachamayo (Peru), (4) Cochabamba (Bolivia), (5) Amazonas, Maranhão, Mato Grosso, Rondônia and Pará (Brazil).

Biology and phenology. *Cissia proba* is multivoltine and flies during all year around (Fig. 75).

Host plants and immature stages. Unknown.

Type material, lectotype designation and taxonomic history. *Euptychia erigone* f. *proba* Weymer, 1911 was described based on an unstated number of specimens from Peru. Two syntypes of *E. erigone* f. *proba* were found deposited at MTD. The syntypes are tagged with an unpublished lectotype and paralectotype labels. To fix the identity of the name, one of the syntypes is designated herein as the lectotype of this taxon (Fig. 70); this specimen has the following labels: /*proba* Weym. [handwritten]/ Hillapani [Illapani Viejo, Cuzco] Peru [handwritten]/ Lectotype ♂ *Euptychia erigone* f. *proba* Weymer by G. Lamas '91/ Stauding[er]. & Bang-Haas Dresden. Ankauf 1961/ Staatl. Museum für Tierkunde Dresden/ GART specimen ID: 02428 Exemplar + Etiketten/; and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia erigone* f. *proba* Weymer, 1911. T. Zacca det. 2016/. MTD. The last two labels will be sent to the curator later. The lectotype photo is also available in Warren *et al.* 2016.

Euptychia mariameliae Hayward, 1957 was described based on only one female [holotype] from Santa Cruz, Bolivia. The description of this species agrees with *Euptychia erigone* f. *proba* Weymer, 1911, and Forster (1964) correctly treated *E. mariameliae* as a junior synonym of the latter species.

Remarks. According to Weymer (1911), the Peruvian *E. erigone* f. *proba* is distinguished from *E. erigone* (currently in *Yphthimoides* Forster, 1964) by a few characters of the VHW, as the silvery incomplete ocelli in M_2-M_3 and M_3-CuA_1, and the wide submedian and median lines. *Euptychia erigone* f. *proba* was erected to species by Forster (1964), who transferred it to his new genus *Argyreuptychia*. This species was not treated in Singer *et al*. (1983), but correctly transferred to *Cissia* by Lamas (2004).

Examined material. 81 males and 40 females. (21 specimens dissected). COLOMBIA – *Meta*:

Villavicencio, Bosque Bavaria, 500-700 m, 1 female, 14.XII.2014, Mielke, Carneiro & Henao *leg*., DZ 33.779 (DZUP). ECUADOR – *no specific locality*: 1 male, no date, no collector, ex-coll. Grose Smith, 1910, BMNH(E) 1421769* (NHMUK); *Napo*: Napo River, 2 males, no date, H. Whitley *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421073*, BMNH(E) 1421104 (NHMUK); *Orellana*: Yasuni, Rio Tiputini, along road, 229 m, S 00 40.446' 076 23.860'W, 1 male, 1.III.2007, M. Majerus *leg*., BMNH(E) 1421802* (NHMUK), 1 male, 1 female, 3.III.2007, BMNH(E) 1421837, BMNH(E) 1421775 (NHMUK), 1 male, 1 female, 4.III.2007, BMNH(E) 1421868, BMNH(E) 1421744 (NHMUK). PERU – *Amazonas*: Upper Marañón Muyo, 250 m, 1 male, 15.I.1973, König *leg*. (ZSBS); *Junín*: Chanchamayo, 1 male, no date, H. Whitley *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421955 (NHMUK), 1 female, 1.VIII.1901, Hofmann *leg*., BMNH(E) 1421894 (NHMUK), 1 male, [no month].1912, Oswald Schuncke *leg*., Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786206 (NHMUK), La Merced, 750 m, 1 male, VII-VIII.1903, Watkins & Tomlinson *leg*., 1904-133, BMNH(E) 1421987 (NHMUK), San Ramón, 915 m, 1 male, no date, Joicey Bequest Brits. Mus.1934-120, BMNH(E) 786208* (NHMUK), 1 male, VIII.1903, Watkins & Tomlinson *leg*., 1904-133, BMNH(E) 1421956 (NHMUK); *Loreto*: Iquitos, 1 male, [no month].1888, Schunke *leg*. (ZMHU), 6 males, no date, H. Whitley *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421893, BMNH(E) 1421707, BMNH(E) 1421738, BMNH(E) 1421800*, BMNH(E) 1421676, BMNH(E) 1421925 (NHMUK), 1 male, no date, Stuart *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421831 (NHMUK), Yurimaguas, 1 female, no data, Hahnel *leg*. (ZMHU), 1 female, no data, Hahnel *leg*., genitalia vial 9102 ♀ Lee D. Miller (ZMHU), 1 male, no date, Hahnel *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421986 (NHMUK), Pebas, 1 male, no date, J. Hausxwell *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421924 (NHMUK); *Madre de Dios*: Tambopata Reserve, 12°50'S 69°17'W, 300 m, 1 female, 25.X.1991, Casagrande *leg*., DZ 27.769 (DZUP), 1 male, 26.X.1991, DZ 27.768 (DZUP); Manu, Rio Colorado, 760 m, 1 female, VI-VIII.1903, Watkins & Tomlinson *leg*., 1904-133, BMNH(E) 1421862* (NHMUK), Rio Perené, 1 female, no date, no collector, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 786209 (NHMUK); *San Martín*: San Antonio de Cumbasa, 1 male, [no month].1886, Garlepp *leg*. (ZMHU); Tarapoto, 1 male, no data, Garlepp *leg*. (ZMHU), *Uyacali*: 1 male, [no month].1896, Michael *leg*. (ZMHU). BOLIVIA – *Buena Vista*: 750m, 2 males, VIII.1906-IV.1907, J. Steinbach *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421016*, BMNH(E) 1421109 (NHMUK); *Cochabamba*: Chapare, Gebiet Upper Chipiriri River, 400 m, 1 male, 1.XI.1953, W. Forster *leg*. (ZSBS), 400-600 m, 1 female, X.1954, R. Schönfelder *leg*. (ZSBS); *Santa Cruz de la Sierra*: 1 female, [no month].1917, no collector, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 786210 (NHMUK), 1 female, 29.XII.1953, W. Forster *leg*. (ZSBS), Sara, 1 male, II.[19]04, J. Steinbach *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421140 (NHMUK), 1 male, III-IV.1904, BMNH(E) 1421078 (NHMUK), 1 male, 1 female, IV-V.1904, BMNH(E) 1421047, BMNH(E) 1421171* (NHMUK), 1 female, VI.1905, BMNH(E) 1421202 (NHMUK). BRAZIL – *no specific locality*: 1 female, no date, no collector, Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 786220 (NHMUK); *Acre*: Cruzeiro do Sul, 1 male, 9.IX.1973, Ebert *leg*., DZ 27.754 (DZUP), Rio Juruá, 200

m, 1 male, 1.V.1972, ex-coll. H. Ebert, DZ 27.765 (DZUP), 1 male, 5.VII.1973, H. Ebert *leg*., DZ 27.762 (DZUP), 1 male, 20.VII.1973, DZ 27.761 (DZUP), 2 males, 4 females, 20-30.VII.1973, DZ 27.756, DZ 27.764*, DZ 27.757, DZ 27.763*, DZ 27.755, DZ 5.310* (DZUP), 1 male, VII.1973, DZ 29.339* (DZUP), Mâncio Lima, Parque Nacional Serra do Divisor (sede), Rio Moa, 7°26'52"S 73°39'55"W, 2 females, 20-27.VI.2013, Mielke, Casagrande, Carneiro, Dias & Dolibaina *leg*., DZ 29.552, DZ 29.555 (DZUP), 4 males, 3 females, 23-30.VIII.2014, Mielke, Casagrande, Carneiro, Dias, Dolibaina, Siewert & Salik *leg*., DZ 32.805, DZ 32.795, DZ 32.785, DZ 32.746, DZ 32.776, DZ 32.776, DZ 32.786 (DZUP), Porto Acre, Reserva Humaitá, 09°73'S 67°68'W, 1 male, 28-31.VII.2008, Mielke & Casagrande *leg*., DZ 32.784 (DZUP), 1 female, 28-30.I.2009, Mielke & Casagrande *leg*., DZ 32.724 (DZUP), Santa Rosa do Purus, 3 males, 11.VIII.2008, Mielke & Carneiro *leg*., DZ 27.758, DZ 27.759, DZ 27.760 (DZUP), Senador Guiomard, Reserva Catuaba, 1 male, 23-27.VII.2008, Mielke & Casagrande *leg*., DZ 32.794 (DZUP), 10°4'27"S 67°37'17"W, 200 m, 3 males, 1 female, 27.VIII-5.IX.2011, Dolibaina & Moura *leg*., DZ 32.775, DZ 32.736, DZ 32.756, DZ 32.726 (DZUP), 1 male, 1.VIII.2008, Mielke & Carneiro *leg*., DZ 32.774 (DZUP); *Amazonas*: Eirunepé, Reserva Rio Gregório, Comunidade Lago Grande, left side, 7°10'06"S 70°49'06"W, 4 males, 18-23.V.2011, Mielke & Casagrande *leg*., DZ 32.664, DZ 32.814, DZ 32.744, DZ 32.754 (DZUP), Ipixuna, Comunidade São Vicente, Rio Liberdade, 7°21'47"71°52'07"W, 3 males, 1 female, 12-15.V.2011, Mielke & Casagrande *leg*., DZ 32.674, DZ 32.764, DZ 32.734, DZ 32.804 (DZUP); *Rondônia*: Ariquemes, 150 m, 1 female, III.1978, E. Furtado *leg*., DZ 27.770 (DZUP), Jaru, 250 m, 2 males, V.1977, H. Ebert *leg*., DZ 28.108*, DZ 28.112 (DZUP), Ouro Preto do Oeste, 1 male, 20.VI.1978, A. Raw *leg*., DZ 5.309* (DZUP), Pimenta Bueno, Riozinho, 200 m, 1 female, 7.VII.1972, Mielke & Brown *leg*., DZ 29.311* (DZUP), 1 male, 9.VII.1972, DZ 27.767 (DZUP), Vilhena, 3 males, 29.X.1986, C. Elias *leg*., DZ 27.766, DZ 29.344*, DZ 29.309* (DZUP); *Pará:* Tapajós, 1 male, no date, H. W. Bates *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1419994* (NHMUK). *Maranhão*: Imperatriz, 1 male, 14.VIII.1974, Exc. Depto Zoologia *leg.*, DZ 27.779 (DZUP), Açailândia, 1 female, 20.VIII.1974, Mielke *leg*., DZ 27.777 (DZUP), 1 male, 22.VIII.1974, DZ 27.781 (DZUP), Santa Luzia, Açailândia-Santa Luzia road, km 108, 1 female, 3.VIII.1974, Mielke *leg*., DZ 27.778 (DZUP), Fazenda Terrasse, 1 male, 31.VII.1974, Mielke *leg*., DZ 28.128 (DZUP), 1 male, 2.VIII.1974, DZ 27.782* (DZUP), 1 male, Mielke *leg*., 3.VIII.1974, DZ 27.780 (DZUP). *Mato Grosso*: 4 males, 3 females, [no month].1886, P. Germain *leg*., Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421770, BMNH(E) 1421801, BMNH(E) 1421832, BMNH(E) 1421863, BMNH(E) 1421677, BMNH(E) 1421708, BMNH(E) 786211 (NHMUK), Alto Rio Xingu, 1 male, 18.VIII.1978, Gifford *leg*., DZ 27.775 (DZUP), Barra do Bugres, 1 male, 15.V.1974, E. Furtado *leg*., DZ 27.772 (DZUP), Alto Rio Paraguai, 150 m, 1 female, 19.IV.1974, E. Furtado *leg*., DZ 27.773 (DZUP), 1 male, 24.V.1974, DZ 27.776 (DZUP), 1 female, 25.VI.1974, DZ 27.771 (DZUP), Cárceres, Coronel Rio Branco, Rio Vermelho, 400 m, 1 female, 1.III.1972, Mielke & Brown *leg*., DZ 27.774 (DZUP), 1 female, 30.VI.1972, DZ 29.347* (DZUP), 1 female, 3.VII.1972, DZ 29.595 (DZUP), 1 male, 8.VII.1972, DZ 32.815 (DZUP), 1 female, 1.VIII.1972, DZ 29.346* (DZUP), Tombador, 16 miles S of Diamantino, 1500 ft, 1 female,

4-6.VI.1927, C. L. Collenette *leg*., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421739 (NHMUK).

***Cissia eous* (Butler, 1867) comb. n.** (Figs 13-16, 38-42, 54-55, 71-72, 76, 80)

Euptychia eoüs [***sic***] Butler, 1867a: 477, pl. 39, fig. 15; syntypes: Brazil, Pará. Lectotype male herein designated: Brazil, Rio de Janeiro; NHMUK (examined); incorrect original spelling (ICZN 1999, Art. 32.5.2). – Butler, 1868: 24.

Euptychia eous; Kirby, 1871: 580. – Weymer, 1911: 208, pl. 48a. – Aurivillius, 1929: 157. – Gaede, 1931: 445. – Köhler, 1935: 213. – Biezanko *et al*., 1957: 117. – Biezanko, 1960a: 3. – Biezanko, 1960b: 2. – Biezanko *et al*., 1962: 93. – Biezanko *et al*., 1966: 33. – D'Abrera, 1988: 774 (male). – Iserhard & Romanowski, 2004: 652.

Paryphthimoides eous; Forster, 1964: 107, fig. 109 (male genitalia). – Brown & Mielke, 1967: 91. – Biezanko *et al*., 1974: 112. – Krüger & Silva, 2003: 40. – Lamas, 2004: 221; **syn.**: *kiliani*. – Bar, 2008: 336. – Núñez-Bustos, 2008: 82. – Paz *et al*., 2008: 145. – Teston & Corseuil, 2008: 47. – Bentancur-Viglione, 2009: 35. – Núñez-Bustos, 2009: 75. – Dolibaina *et al*., 2011: 349. – Núñez-Bustos *et al*., 2011: 40. – Mielke *et al*., [2012]: 301. – Giacomet *et al*., 2012: 118. – Silva *et al*., 2013: 90. – Paz *et al*., 2013: 420. – Garcia-Salik *et al*., 2014: 279. – Thiele *et al*., 2014: 7.

Paryphthimoides bahneri Anken, 1994: 348, figs 1 (male), 2 (male genitalia); holotype: Brazil, Mato Grosso do Sul, Navirai, Barranco do Rio Amambai; RA. **syn. n.**

Paryphtimoides kiliani Anken, 1999: 108-110, figs 1-8 (male, female, genitalia); holotype: Brazil, Minas Gerais, Poté; RA.

Diagnosis. *C. eous* is distinguished from its congeners by the (1) DHW with a developed rounded ocellus in CuA_1-CuA_2, and circled by a well-marked golden ring, (2) VHW with dark brown ochre and crenulated submedian, median, submarginal and marginal lines, (3) in general, the median line on VHW is inwards pronunciated between CuA_2 and the inner margin, and (4) the space between the marginal line and the outer margin is yellow ochre pale on VHW. *Cissia eous* has the dorsal wing phenotype similar to *C. proba*, with no subapical ocellus on DFW, but *C. eous* is differenciated from that by its ocellus on DHW occupying half the space between CuA_1-CuA_2 (while this ocellus occupies all that space in *C. proba*).

Male genitalia (Figs 38-42). Tegumen slightly flattened, laterally subtriangular; uncus arched downward, about 1 ½ the length of the tegumen, covered by small setae, smoothly dilated at the median region, apex curved downwards and truncated in dorsal view; gnathos hook-like (but not too accentuated as in *C. pompilia* and *C. proba*), half the length of the uncus;

combination of the ventral arms of tegumen and dorsal arms of saccus sinuous; appendix angularis short and curved downwards; anterior projection of saccus developed, cylindrical, longer than the gnathos; fultura inferior present; fultura superior absent; valva sub-rectangular covered by long hairy-like setae latero-ventrally, and short ones at the inner side, costa developed and rectangular, dorsal margin slightly projected at the median region, ventral margin slightly projected at the median region, apex wide and serrated; aedeagus straight, about the same length as the valva, cylindrical, anterior region bottle-shaped, posterior region about two times longer than the anterior region with bifid apex in dorsal view, distal opening ventral and longer than the proximal opening.

Female genitalia (Figs 54-55). 8th tergite rectangular; papilla analis somewhat triangle covered by long hairy-like setae at the distal region, apophysis posterior short; lamella antevaginalis fused to lamella postvaginalis with one spiracle located at the upper margin of the lateral expansions of the lamella antevaginalis; lamella postvaginalis orbicular in ventral view; ductus bursae membranous; corpus bursae about the same length as the ductus bursae, with paired signa latero-ventrally.

Variation. Females are normally larger (FW length: 18–21 mm) than males (FW length: 15–19 mm), and the distance between the median and submarginal lines is wider on VFW. The number of ocelli on VFW vary between three and four. The number of pupils at the first, third and fourth ocelli on VHW can also vary between one and two. The ocelli size on VHW is other variable feature, but even if the second and the fifth ocelli are reduced, the ochre circled ring and the pupil(s) are always evident, making easy its distinction from *C. phronius*. Seasonal polyphenism is also observed in *C. eous* (as also reported in Anken 1999), being the ocelli extremally reduced and paler ventral lines in dry season.

Distribution. This species is restricted to southern South America, occurring in Brazil, Uruguay, Paraguay and Argentina (Fig. 80), and it has been associated with several vegetational formations, such as riparian forests, open woods and second growth forests, even in antropic areas (Biezanko *et al.* 1960a; Brown & Mielke 1967; Anken 1994; Paz *et al.* 2013). Mainly found in lowlands areas, but can be eventually found in the mountain side forests (D. R. Dolibaina, *pers. com.*), in altitudes not higher than 1100 m. In Brazil, *C. eous* is widely distributed in the northern, midwest and southern regions, with only one old record from Manaus, Amazonas (Aurivillius, 1929) that might be probably incorrected. *Cissia eous* is sympatric with *C. penelope*, *C. proba* and *C. phronius* in midwestern Brazil, and only with *C. phronius* in all other places of its abovementioned occurrence, where both can also be found flying together. New records of *C. eous* are reported to (1) Bahia, Rio de Janeiro, Mato Grosso,

São Paulo and Santa Catarina (Brazil), (2) Montevideo (Uruguay), (3) Alto Paraná, Asunción, Guairá, Paraguarí and Cordillera (Paraguay), and (4) Formosa and Salta (Argentina).

Biology and phenology. *Cissia eous* is commonly found in moist and shady places, and is also attracted by fermented fruits (Biezanko *et al.* 1960a), being collected in bait traps (Garcia-Salik *et al.* 2014). It is multivoltine and flies during all year round.

Host plants and immature stages. Larvae of *Cissia eous* has been recorded feeding on *Poa* L. species (Hayward 1969; Ackery 1988), more specifically in *Poa annua* L. (Biezanko *et al.* 1957), and also in *Digitaria sanguinalis* (L.) and *Stenotaphrum secundatum* (Walt.) (Biezanko *et al.* 1960a; Silva *et al.* 1968).

Type material, lectotype designation and taxonomic history. *Euptychia eous* Butler (1867a) was described based on an unstated number of specimens from Pará, Brazil. After exhaustive searches at NHMUK, no syntypes from this type locality was found. Nevertheless, two specimens from Rio de Janeiro (Figs 71-72), Brazil were found at NHMUK, and they have the bluish typical Butler's identification labels. Considering the type-locality of *E. eous* is wrong due the absence of any record of this species to north Brazil, one of those specimens from Rio de Janeiro is herein selected as the neotype of *Euptychia eous* to fix the identity of the name; this specimen has the following labels: /Type/ Rio de Janeiro/ Rio/ *Euptychia eous* Butler. Monog[raph]./ B. M. Type No. Rh 3210 *Euptychia eous* ♂Butl[er]./ BMNH(E) 1267063/; and two others labels will be added later: /Neotypus/ Neotypus *Euptychia eous* Butler, 1867. T. Zacca det. 2016/. NHMUK. The last two labels will be sent to the curator.

Remarks. According to William T. M. Forbes (*in letter* in Biezanko *et al*. 1960a), *E. eous* differs to *E. poltys* (currently *Paryphthimoides poltys* – see Chapter 1) by having two ocelli (at M_1-M_2 and CuA_1-CuA_2) larger than the others on VHW and, at least, a large one and darker ocellus in *E. eous*. Forbes also ascribed that *E. punctata* Weymer, 1911 is an extreme form of *E. eous*. However, Freitas *et al.* (2016) have recently demonstrated that *E. punctata* is a valid species, currently placed in *Sepona* Freitas & Barbosa, 2016. Comparing *S. punctata* and *C. eous* it is clear to see the differences between these species, such as the smaller size in *C. eous* (16–19 mm), ocelli generally bipupilated (always with only one pupil in *S. punctata*), short gnathos (longer in *S. punctata*) and the narrow and arched downward uncus (straight and wide in *S. punctata*).

Weymer (1911) treated *E. zeredatha* Butler, 1869 as a form of *E. eous*, being distinguished from that by the small and punctiform ocelli on ventral surface. Interestingly, Biezanko *et al.* (1960b) drew the attention that *E. eous* and its *zeredatha* form were syntopic, being also very common in Rio Grande do Sul, Brazil. *Eous* and *zeredatha* are distinguished

by the less dense scales on the wings of the latter (Biezanko *et al*. 1960b) and all the ocelli on the underside are very small and punctiform (Weymer 1911). Lamas (2004) erected *zeredatha* to species, and considered *P. bahneri* its synonym. However, morphological evidences support *E. zeredatha* as a synonym of *Paryphthimoides poltys* (Prittwitz, 1865) (see Chapter 1).

Paryphthimoides bahneri Anken, 1994 was described based on only one specimen [holotype] from Navirai, Mato Grosso do Sul, Brazil. According to Anken, this species is characterized by its reduced wings markings, DHW with two small ocelli in CuA_1-CuA_2 and CuA_2-2A, apex of the valva serrated and cornutal patch located at the anterior region of the aedeagus. It was observed that the two former characters are strongly variable among the individuals of *C. eous*. The illustration of the genitalia provided by Anken provides strong evidence about the similarities between his new species and *C. eous*. Although Anken described *P. bahneri* as having cornutal patch, his illustration is not accurated concerning this structure, especially considering that the cornuti are generally located at the posterior region of aedeagus in all Euptychiina with this feature. Also, while Anken's text affirms that the diagnostic character of the aedeagus of *P. bahneri* is the location of the cornutal patch, in the illustration of the aedeagus there is a setae indicating the posterior region of aedeagus as a diagnostic feature. This also could be interpreted as his "cornuti" or that the posterior region is bifid, as it is most likely. If it is considered the latter option, the genitalia is clearly distinct to *C. eous*, that is the reason we are synonymizing *P. bahneri* to this species, and not to *Parypthimoides phronius* as suggested by Lamas (2004). In fact, *C. eous, P. phronius* and *P. poltys* are very similar to each other, but their genitalia help on their reliable identifications.

Anken (1999) stated that *P. kiliani* differs from *P. eous* by having less crenulated lines on both ventral wings. Two male paratypes showed a distinct phenotype that Anken treated has variation of *P. kiliani*. One of these paratypes is illustrated (p. 111, figs 5-6), and it is clearly a species of *Hermeuptychia* (probably *H. hermes* (Fabricius, 1775) or *H. fallax* (C. Felder & R. Felder, 1862)). One might suspect that Anken very probably choose to compare with the "true" *P. eous*, the genitalia of one of those misidentified paratypes. But curiously, the genitalia of the holotype illustrated in his work (Fig. 7) agrees in all aspects with *C. eous*, and does not supports Anken's misinterpretation. As it was not possible to access the types of *P. kiliani*, there is no other option than base the present taxonomic decision on the Anken's paper and well-illustrated male holotype. *Paryphtimoides kiliani* is considered a synonym of *Euptychia eous* by Lamas (2004).

Examined material. 231 males and 154 females (17 specimens dissected). BRAZIL – *Bahia:* Cândido Sales, 850 m, 1 male, 16.VII.1967, Ebert *leg*., DZ 34.324 (DZUP), 2 males, 28.III.1969, H.

Ebert *leg*., DZ 29.038, DZ 29.045 (DZUP), Caitité, Maniaçu, 13 km SE, 850 m, 1 male, 1 female, 5-6.II.2005, Mielke & Casagrande *leg*., DZ 32.732, DZ 32.783 (DZUP), 1 male, 8-11.XII.2005, DZ 32.753 (DZUP), 1 male, 4-8.II.2007, DZ 25.693 (DZUP), 880 m, 1 male, 29.II.2008, DZ 32.773 (DZUP), 850 m, 1 female, 1-4.III.2008, DZ 32.763 (DZUP), 1 female, 7.III.2008, DZ 32.742 (DZUP), Campo Formoso, 500 m, 1 female, 20.VII.1973, Mielke *leg*., DZ 29.039 (DZUP), Itamaraju, 100 m, 2 females, 20.VII.1977, Mielke, Moure & Elias *leg*., DZ 29.042, DZ 29.088 (DZUP), Jitaúna, Rio de Contas, 150 m, 1 male, 5.II.1969, Ebert *leg*., DZ 29.044 (DZUP), 2 males, 1 female, 26.III.1969, DZ 29.043, DZ 29.041, DZ 29.040 (DZUP), Lajedão, 3 males, 21.VII.1967, H. Ebert *leg*., DZ 34.364, DZ 34.374, DZ 33.120* (DZUP); *Espírito Santo*: Santa Leopoldina, 100-600 m, 1 male, IX.1951, H. Ebert *leg*., DZ 28.629 (DZUP), Santa Teresa, 1 male, 1 female, I.1968, ex-coll. H. Ebert, DZ 29.055, DZ 29.056 (DZUP), 800 m, 1 female, 28.VII.1967, H. Ebert *leg*., DZ 28.735 (DZUP), 750 m, 1 female, 25-29.III.1970, K. Ebert *leg*., DZ 28.732 (DZUP), São João de Petrópolis, 3 males and 2 females, 25.VII.1966, Mielke, Brown & Elias *leg*., DZ 28.626, DZ 26.628, DZ 28.728, DZ 28.734, DZ 28.719 (DZUP), Baixo Guandu, 1 male, 28.II.1970, C. & C. T. Elias *leg*., DZ 28.729 (DZUP), 1 female, 4.III.1970, DZ 28.731 (DZUP); Conceição da Barra, 1 female, 20.VI.1968, C. & C. T. Elias *leg*., DZ 28.773 (DZUP), 1 male, 17.IX.1969, DZ 28.627 (DZUP); Itaguaçu, 2 males, 16-21.III.1970, Elias *leg*., DZ 28.723, DZ 28.724 (DZUP); Linhares, 2 males, 1 female, IV.1978, DZ 28.721, DZ 28.717, DZ 28.718 (DZUP), 1 female, IX.1981, C. Elias *leg*., DZ 28.720 (DZUP), Reserva Florestal da Companhia Vale do Rio Doce, 25-100 m, 2 males, 1 female, 17-26.II.1975, H. & H. D. Ebert *leg*., DZ 28.722, DZ 28.726, DZ 28.727 (DZUP), Reserva Sooretama, 1 female, 31.VII.1966, Mielke, Brown & Elias *leg*., DZ 28.730 (DZUP); Santa Leopoldina, 100-600 m, 5 males, 4 females, IX.1951. H. Ebert *leg*., DZ 28.736, DZ 28.737, DZ 29.036, DZ 29.037, DZ 29.069, DZ 28.663, DZ 28.631, DZ 28.630, DZ 28.632 (DZUP), 2 males, 26.VII.1966, Mielke, Brown & Elias *leg*., DZ 28.725, DZ 33.121* (DZUP); *Mato Grosso*: Barra do Bugres, Alto Rio Paraguai, 150 m, 1 female, 26-29.VII.1974, H. Ebert *leg*., DZ 25.683 (DZUP), 31 km NW, 200 m, 1 male, 28.VI.1972, Mielke & Brown *leg*., DZ 28.749 (DZUP), 1 male, 14.VII.1972, DZ 28.748* (DZUP), Chapada dos Guimarães, Buriti, 700 m, 1 female, 30.I.1978, ex-coll. H. Ebert, DZ 28.741 (DZUP), 1 male, 15.VIII.1978, DZ 28.744 (DZUP), Cáceres, 2 females, 9-11.XI.1984, Buzzi, Mielke, Elias & Casagrande *leg*., DZ 28.738, DZ 28.739 (DZUP), 1 female, 13.XI.1984, DZ 28.740* (DZUP), Coronel Rio Branco, Rio Vermelho, 400 m, 1 male, 3.VII.1972, Mielke & Brown *leg*., DZ 28.747 (DZUP), 1 male, 1.VIII.1972, DZ 28.743 (DZUP), Cuiabá, 150 m, 1 male, 15.X.1978, H. Ebert *leg*., DZ 28.745 (DZUP), 1 female, 14.IV.1979, DZ 28.746 (DZUP), Diamantino, Alto Rio Arinos, Fazenda São João, 300-400 m, 1 male, 1 female, 1-8.VIII.1974, H. & H. D. Ebert *leg*., DZ 28.707, DZ 28.708 (DZUP), 1 male, 12.VIII.1978, DZ 28.750 (DZUP), 1 female, 3.IX.1979, DZ 25.673 (DZUP), Nova Xavantina, 1 male, 2.I.1977, ex-coll. Gifford, DZ 28.742 (DZUP); *Mato Grosso do Sul:* Salobra, 2 females, 24.VIII–6.IX.1940 (IOC); *Goiás*: no specific locality, 1 female, 31.VIII.1969, ex-coll. H. Ebert, DZ 33.796 (DZUP); *Distrito Federal*: Brasília, 1 male, 15.IX.1968, ex-coll. H. Ebert, DZ 32.675 (DZUP); *Minas Gerais*: Barbacena, 900-1100 m, 1 male, 21.VIII.1952, H.

Ebert *leg*., DZ 28.665 (DZUP), 1100 m, 2 males, 4.VII.1951, DZ 28.662, DZ 28.643 (DZUP), 2 males, 11.VIII.1951, DZ 28.660, DZ 28.641 (DZUP), 1 male, 13.VIII.1951, DZ 28.673 (DZUP), 2 males, 25.VIII.1951, DZ 28.661, DZ 28.644 (DZUP), 1 male, 26.VIII.1951, DZ 28.636 (DZUP), 1 male, 29.IX.1951, DZ 28.676 (DZUP), 1 female, 4.IX.1951, DZ 28.637 (DZUP), 2 males, 30.IX.1951, DZ 28.667, DZ 28.655* (DZUP), 1 female, 9.X.1951, DZ 28.664 (DZUP), 1 female, 25.V.1952, DZ 28.669 (DZUP), 2 males, 1 female, 29.V.1952, DZ 28.650, DZ 28.645, DZ 28.677 (DZUP), 1 male, 10.VIII.1952, DZ 28.652 (DZUP), 1 male, 24.VIII.1952, DZ 28.678 (DZUP), 1 female, 26.VIII.1952, DZ 28.635 (DZUP), 1 male, 22.IX.1952, DZ 28.679 (DZUP), 1 female, 26.IX.1952, DZ 28.647 (DZUP), 1 female, 6.X.1952, DZ 29.033 (DZUP), 1 male, 1 female, 14.X.1952, DZ 28.666, DZ 29.073 (DZUP), 1 male, 16.XI.1952, DZ 28.761 (DZUP), 1 male, 21.XI.1952, DZ 28.764 (DZUP), 1 female, 23.XI.1952, DZ 28.756 (DZUP), 1 female, 28.XI.1952, DZ 29.067 (DZUP), 1 female, 5.XII.1952, DZ 28.763 (DZUP), 1 female, 7.XII.1952, DZ 28.760 (DZUP), 1 male, 19.XI.1953, DZ 29.080 (DZUP), 1 male, 24.XI.1953, DZ 28.762 (DZUP), 1 male, 30.XI.1953, DZ 29.032 (DZUP), 1 male, 7.VIII.1956, DZ 28.659 (DZUP), Barroso, 950 m, 1 female, 4.XII.1953, H. Ebert *leg*., DZ 29.075 (DZUP), Belo Horizonte, 3 females, I.1942, Livio Renaut *leg*. (IOC); Buritis, 1 female, 23.XII.1968, ex-coll. H. Ebert, DZ 5.419* (DZUP), Cambuquira, 1 female, 6.X.1968, ex-coll. H. Ebert, DZ 28.675 (DZUP), 900 m, 1 male, 4.VIII.1968, H. Ebert *leg*., DZ 28.638 (DZUP), 1 male, 15.IX.1969, DZ 28.640 (DZUP), 2 males, 1 female, 7.XI.1969, DZ 28.753, DZ 28.765, DZ 28.751 (DZUP), 1 male, 15-16.III.1981, DZ 28.752 (DZUP), Carandaí, 1 male, 5.VII.1955, ex-coll. H. Ebert, DZ 28.716 (DZUP), Carangola, Sitio Boa Vista, 600-800 m, 1 female, XII.1950, H. Ebert *leg*., DZ 28.770 (DZUP), Caratinga, Estação Biológica, 400 m, 1 female, 29.I-3.II.2003, Mielke & Casagrande *leg*., DZ 29.085 (DZUP), Curvelo, Cabeceira do Córrego Leitão, 700 m, 3 males, 15.VI.1972, Mielke & Brown *leg*., DZ 28.769, DZ 32.684, DZ 28.670 (DZUP), Fervedouro, 1 male, 1 female, 18.II.1972, DZ 29.048, DZ 29.047 (DZUP), Ibiturana, 1 male, 15.IV.1955, ex-coll; H. Ebert, DZ 29.061 (DZUP), Itaipé, 650 m, 1 male, 21.III.1969, H. Ebert *leg*., DZ 28.759 (DZUP), Juiz de Fora, Rio Paraibuna, 500 -800 m, 1 male, 6.VII.1953, H. Ebert *leg*., DZ 28.653 (DZUP), 1 male, 24.IX.1953, DZ 28.654 (DZUP), 1 male, 9.X.1953, DZ 28.658 (DZUP), Lambari, 850 m, 1 female, 27.IX.1968, H. Ebert *leg*., DZ 28.648 (DZUP), 1 male, 24.IX.1953, DZ 28.657 (DZUP), Marliéria, Parque Estadual do Rio Doce, 200 m, 3 males, 1 female, 27.VII.1972, H. & H. D. Ebert *leg*., DZ 28.772, DZ 28.634, DZ 28.639, DZ 28.681 (DZUP), 1 male, 9.IX.1972, DZ 28.633 (DZUP), 1 female, 14.II.1974, DZ 28.768 (DZUP), 1 male, 15.II.1974, DZ 28.755 (DZUP), 1 female, 19.II.1974, DZ 28.774 (DZUP), 1 male, 15.XII.1977, DZ 28.771 (DZUP), Muriaé, 250 m, 1 female, 17.II.1972, H. & H. D. Ebert *leg*., DZ 29.050 (DZUP), Ouro Preto, Fazenda Barcelos, 1100-1200 m, 1 female, 14.IX.1952, H. Ebert *leg*., DZ 28.656 (DZUP), Paracatu, 1 female, 14.IX.1968, ex-coll. H. Ebert, DZ 32.741 (DZUP), 2 males, 17.V.1969, DZ 29.060, DZ 29.063 (DZUP), 1 male, 9.IX.1969, DZ 32.685 (DZUP), Paraopeba, 1 male, 18.V.1969, ex-coll. H. Ebert, DZ 29.053 (DZUP), 1 male, 1 female, 11.IX.1969, DZ 28.651, DZ 28.642 (DZUP), 750 m, 3 males, 2 females, 23.VII.1972, H. & H. D. Ebert *leg*., DZ 28.674, DZ 28.672, DZ 28.671, DZ 28.649, DZ 28.646 (DZUP), 1 male, 23.VII.1972, DZ

28.682 (DZUP), Poços de Caldas, 2 males, III.1964, ex-coll. H. Ebert, DZ 28.777, DZ 28.776 (DZUP), 1250 m, 1 male, 17.XII.1966, ex-coll. H. Ebert, DZ 28.758 (DZUP), 1 male, 18.XII.1966, DZ 29.034 (DZUP); 100 m, 1 male, 25.IV.1967, DZ 28.754 (DZUP), Santa Bárbara, Rio Pomba, 750 m, 1 male, 1 female, 19.VI.1953, ex-coll. H. Ebert, DZ 29.035, DZ 28.680 (DZUP), Santos Dumont, Rio Novo, 850 m, 1 male, 7.XI.1952, H. Ebert *leg*., DZ 29.077 (DZUP), 1 male, 1 female, 15.XI.1953, DZ 28.757, DZ 28.775 (DZUP), São João del Rei, Rio das Mortes, 800-1000 m, 2 males, 16.II.1956, H. Ebert *leg*., DZ 28.767, DZ 28.766 (DZUP), 1 female, 22.VII.1956, DZ 28.668 (DZUP), Sete Lagoas, 1 male, 14.I.[19]69, no collector (ZSBS); *Rio de Janeiro*: Duque de Caxias, Imbariê, 1 female, 31.III.? [no year], ex-coll. H. Ebert, DZ 29.007 (DZUP), 1 male, 1 female, 1.V.1955, DZ 29.015, DZ 28.987 (DZUP), 1 female, 27.VIII.1955, DZ 28.890 (DZUP), 1 female, 2.I.1956, DZ 28.985 (DZUP), 1 male, 23.II.1956, DZ 28.894 (DZUP), 3 females, 5.V.1956, DZ 29.000, DZ 29.005, DZ 29.074 (DZUP), 1 female, 17.XII.1956, DZ 29.016 (DZUP), 1 male, 20.XII.1956, DZ 29.078 (DZUP), 1 female, 10.III.1957, DZ 28.998 (DZUP), 1 male, 21.IV.1958, DZ 28.995 (DZUP), 1 male, 13.V.1958, DZ 28.994 (DZUP), 3 males, 5.III.1960, DZ 29.020, DZ 29.028, DZ 28.975 (DZUP), 1 male, 21.IV.1965, DZ 29.024 (DZUP), 1 male, 11.VII.1965, DZ 28.974 (DZUP), 1 female, 17.VII.1965, DZ 29.006 (DZUP), 1 male, 1 female, 7.III.1981, DZ 28.993, DZ 29.022 (DZUP), Xerém, 1 male, 16.XII.1952, ex-coll. H. Ebert, DZ 28.979 (DZUP), 1 male, 1.III.1954, DZ 29.076 (DZUP), 1 female, 13.V.1956, DZ 28.981 (DZUP), 1 male, 15.X.1984, DZ 28.710 (DZUP), Itatiaia, Mauá, 1200 m, 1 male, 1 female, XII.1957, ex-coll. H. Ebert, DZ 29.013, DZ 29.001 (DZUP), Itatiaia, 1000-1200 m, 1 male, II.1959, H. Ebert *leg*., DZ 28.714 (DZUP), 750 m, 1 male, 2.XI.1967, DZ 28.991 (DZUP), Magé, 1 male, 1 female, 28.VII.1964, ex-coll. H. Ebert, DZ 28.996, DZ 29.049 (DZUP), 1 male, 26.VII.1969, DZ 29.017 (DZUP), 1 female, 10.IV.1971, DZ 29.018 (DZUP), Niterói, São Francisco, 20-150 m, 1 male, 15.XI.1950, H. Ebert *leg*., DZ 28.976 (DZUP), 2 males, 3 females, 1.III.1952, DZ 29.009, DZ 29.003, DZ 29.004, DZ 29.026, DZ 28.988 (DZUP), Nova Iguaçu, 1 male, 26.II.1926, ex-coll. D'Almeida, DZ 29.029 (DZUP), Serra do Tinguá, 100 m, 1 female, 6.V.1951, H. Ebert *leg*., DZ 28.999 (DZUP), Rio de Janeiro, Campo Grande, 25 m, 1 male, 24.VI.1951, H. Ebert *leg*., DZ 29.014 (DZUP), 2 females, 26.IV.1951, DZ 28.990, DZ 28.992 (DZUP), 1 male, 2 females, 6.I.1952, DZ 29.008, DZ 28.893, DZ 28.977 (DZUP), Encantado, 1 female, 3.VI.1934, ex-coll. D'Almeida, DZ 29.019 (DZUP), 2 males, 29.III.1952, DZ 29.031, DZ 29.027 (DZUP), Jacarepagua, 1 female, 9.II.1919, ex-coll. D'Almeida, DZ 29.030 (DZUP), 1 male, 14.II.1958, DZ 29.023 (DZUP), 1 female, 20.XII.1959, DZ 29.025 (DZUP), 1 male, 31.XII.1960, DZ 28.712 (DZUP), 1 female, 29.III.1962, DZ 29.021 (DZUP), Lagoinha, 250 m, 1 female, 25.VIII.1954, DZ 28.711 (DZUP), 1 female, 7.VIII.1956, DZ 29.083 (DZUP), Paineiras, 500 m, 1 female, 31.XII.1951, H. Ebert *leg*., DZ 28.989 (DZUP), Santa Teresa, 100 m, 1 male, 16.III.1952, H. Ebert *leg*., DZ 29.081 (DZUP), 1 male, 23.III.1952, DZ 29.011 (DZUP), 1 female, 5.IV.1952, DZ 28.982 (DZUP), 1 female, 7.IV.1952, 5.425* (DZUP), 1 male, 10.IV.1952, DZ 29.010 (DZUP), 2 males, 1 female, 11.IV.1952, DZ 29.012, DZ 29.082, DZ 29.071 (DZUP), 1 male, 9.VI.1952, DZ 28.715 (DZUP), 1 male, 21.VI.1952, DZ 5.424* (DZUP), Tijuca, Restinga, 1 male, 1 female, 27.X.1951, H. Ebert *leg*., DZ 29.002, DZ 29.070

(DZUP), 1 male, 17.V.1952, DZ 28.997 (DZUP), 1 male, 22.VI.1952, DZ 28.709 (DZUP), 1 male, 7.II.1953, DZ 28.986 (DZUP), Urca, 50-150 m, 1 male, 23.XII.1950, DZ 28.713 (DZUP); *São Paulo*: Araras, 600 m, 1 female, 16.I.1966, H. Ebert *leg*., DZ 28.784 (DZUP), 1 female, 8.IV.1966, DZ 29.068 (DZUP), 1 male, 23.XI.1968, DZ 28.778 (DZUP), Batatais, 1 male, XII.1967, Moure *leg.*, DZ 28.786 (DZUP), Brotas, Campo Alegre, 750 m, 1 female, 21.IV.1963, DZ 25.625 (DZUP), 1 male, 11.VII.1967, H. Ebert *leg*., DZ 28.686 (DZUP), Caraguatatuba, 10 m, 1 male, 4.IX.1963, H. Ebert *leg*., DZ 28.701 (DZUP), Cordeirópolis, 600 m, 1 male, 12.VIII.1962, H. Ebert *leg*., DZ 28.703 (DZUP), Getulina, 1 male, 12.XI.1975, Mielke & Rosado *leg*., DZ 28.788 (DZUP), Itirapina, 250 m, 1 male, 15.VIII.1966, H. Ebert *leg*., DZ 28.699 (DZUP), Jundiaí, Serra do Japi, 1 female, 25.II.[20]14, no collector, MGCL-Loan 571 (ZUEC), Leme, 600 m, 1 female, 15.XI.1966, H. Ebert *leg*., DZ 25.635 (DZUP), Mirassol, 500 m, 1 male, 1.XI.1972, H. Ebert *leg*., DZ 25.694 (DZUP), Pereira Barreto, Alto Rio Paraná, 300 m, 1 male, 3-14.XI.1972, DZ 28.773 (DZUP), Rio Claro, 600 m, 1 male, 31.V.1962, H. Ebert *leg*., DZ 28.683 (DZUP), 1 female, 28.IV.1962, DZ 28.790 (DZUP), 1 male, 31.V.1962, DZ 28.780 (DZUP), 1 male, 29.VI.1962, DZ 29.066 (DZUP), 3 males, 5.VIII.1962, DZ 28.706, DZ 28.706, DZ 28.695 (DZUP), 2 males, 15.VIII.1962, DZ 28.698, DZ 28.697 (DZUP), 1 male, 22.VIII.1962, DZ 28.791 (DZUP), 3 males, 1 female, 9.IX.1962, DZ 28.685, DZ 28.684, DZ 28.700, DZ 28.779 (DZUP), 1 male, 26.X.1962, H. Ebert *leg*., DZ 28.705 (DZUP), 1 male, 28.X.1962, DZ 28.696 (DZUP), 2 males, 2 females, 15.XI.1962, DZ 28.781, DZ 25.655, DZ 28.687, DZ 28.704 (DZUP), 2 males, 13.IV.1963, DZ 28.783*, DZ 28.782 (DZUP), 1 female, 5.IV.1964, DZ 28.785 (DZUP), 1 female, 21.IV.1964, DZ 28.787 (DZUP), 1 male, 23.IV.1964, DZ 33.794* (DZUP), 1 male, 20.VIII.1964, DZ 28.691 (DZUP). 1 female, 28.IX.1964, DZ 28.702 (DZUP), 1 male, 2.I.1966, DZ 28.789 (DZUP), 1 female, 23.V.1968, DZ 33.793* (DZUP), 1 female, 28.II.1975, DZ 25.645 (DZUP), 1 female, 7.V.1980, DZ 25.684 (DZUP), São Francisco, Piriápolis, 1 male, 6.XII.1974, ex-coll. H. Ebert, DZ 28.688 (DZUP), São Paulo, Ipiranga, 1 male, 1 female, 30.VIII.1941, ex-coll. D'Almeida, DZ 28.689, DZ 28.694 (DZUP), Ubatuba, 25 m, 1 male, 13.XI.1965, H. Ebert *leg*., DZ 28.690 (DZUP), Teodoro Sampaio, Morro do Diabo, 250-500 m, 1 female, 15-18.III.1991, Mielke & Casagrande *leg*., DZ 29.084 (DZUP); *Paraná*: Alto Paraíso, Parque Nacional Ilha Grande, 23°23'57"S 53°49'06"W, 1 male, 4.X.2012, LABLEP *leg*., DZ 32.813 (DZUP), Fazenda Lupus, 23°25'19"S 53°49'49"W, 2 males, 3.X.2012, LABLEP *leg*., DZ 32.723, DZ 32.743 (DZUP), Campo Bonito, RPPN Hermínio & Maria, 24°49'42"S 53°01'48"W, 1 female, 9.X.2012, LABLEP *leg*., DZ 32.731 (DZUP), Diamante do Norte, Estação Ecológica do Caiuá, 22°36'24"S 52° 52'14"W, 1 male, 16.V.2009, Dolibaina & Carneiro *leg*., DZ 25.632, DZ 25.653 (DZUP), 1 female, 7.X.2009, Carneiro, Dolibaina, Dias & Ribeiro *leg*., DZ 35.591 (DZUP), 1 female, 8.X.2009, DZ 25.663 (DZUP), 300 m, 1 female, 17.III.2011, Dolibaina & Salik *leg*., DZ 32.803 (DZUP), 1 male, 18.III.2011, DZ 25.712 (DZUP), 1 male, 19.III.2011, DZ 25.662 (DZUP), 1 male, 23.IV.2011, DZ 25.682 (DZUP), Fênix, 300 m, 1 female, 23.XI.1986, Mielke & Casagrande *leg*., DZ 25.703 (DZUP), Formosa do Oeste, 1 male, 23.XII.1972, Furtado *leg*., DZ 28.799 (DZUP), Foz do Iguaçu, 250 m, 1 male, 1 female, 17.II.1969, Moure & Mielke *leg*., DZ 33.795*, DZ 28.800* (DZUP), Parque Nacional do Iguaçu, 1 male,

1 female, 21-24.IV.1995, Mielke & Casagrande *leg*., DZ 25.665, DZ 25.692 (DZUP), Guaira, Parque Nacional das Sete Quedas, 1 female, 14-16.II.1978, Mielke & Miers *leg*., DZ 25.675 (DZUP), Jaguairaiva, Parque Estadual do Cerrado, 800 m, 1 male, 22.XI.2009, Mielke, Carneiro, Maia, Ribeiro & Dolibaina *leg*., DZ 25.622 (DZUP), Jussara, Horto Companhia Melhoramentos Norte do Paraná, 500 m, 1 female, 12.XII.1975, Moure, Mielke & Wedderhoff *leg*., DZ 25.695 (DZUP), Loanda, Fazenda Matão, 22°54'39"S 52°53'34"W, 1 male, 1 female, 15.V.2009, Dolibaina & Carneiro *leg*., DZ 25.642, DZ 25.652 (DZUP), 400 m, 1 male, 12.XII.2009, Mielke, Maia & Dolibaina *leg*., DZ 25.623 (DZUP), Londrina, Fazenda Santa Helena, 650 m, 1 female, 7.XII.1975, Moure, Mielke & Wedderhoff *leg*., DZ 28.978 (DZUP), Moreira Salles, RPPN Moreira Salles, 24°04'25"S 53°02'4610"W, 1 female, 7.X.2012, LABLEP *leg*., DZ 32.823 (DZUP), Paranaguá, Floresta Estadual do Palmito, 25°34'8"W 48°32'8"S, 10-20 m, 1 male, 12-13.II.2014, Leviski, Queiroz-Santos & Siewert *leg*., DZ 32.733 (DZUP), Planaltina do Paraná, RPPN Duas Barras, 250 m, 1 female, 10.X.2009, Carneiro, Leite, Dias & Dolibaina *leg*., DZ 25.643 (DZUP), 20 km SW, Fazenda Duas Barras, 250 m, 2 females, 16.XII.2009, Mielke, Carneiro, Maia & Dolibaina *leg*., DZ 25.633, DZ 35.601 (DZUP), Ponta Grossa, 1 male, 31.VIII.1953, Furtado *leg*., DZ 28.801 (DZUP), Rolândia, Rio Tibagi, 750 m, 2 females, 19.IX.1949, V. Waltz *leg*., DZ 25.685, DZ 25.713 (DZUP), São Jorge do Ivaí, 1 male, 24.X.1973, Furtado *leg*., DZ 28.803 (DZUP), 1 male, 29.X.1973, DZ 28.802 (DZUP), São Pedro do Ivaí, RPPN Barbacena, 300 m, 1 male, 1 female, 8.X.2010, Mielke, Dolibaina, Carneiro & Maia *leg*., DZ 29.086, DZ 29.087 (DZUP), Três Barras do Paraná, Parque Estadual Guarani, 25°26'21"S 53°09'45"W, 1 female, 9-11.X.2012, LABLEP *leg*., DZ 32.793 (DZUP), Turvo, Fazenda Baitala, Rio Ivaí, 1 male, 21.IV.2007, Dolibaina *leg*., DZ 25.672 (DZUP); *Santa Catarina*: Seara, Nova Teutônia, 400-700 m, 1 male, 1.II.1972, Plaumann & Mielke *leg*., DZ 28.792 (DZUP), 27°11'S 52°23'E, 1 female, IV.1981, Fritz Plaumann *leg*., DZ 31.195 (DZUP), 1 male, XII.1981, DZ 28.795 (DZUP), 3 males, I.1982, DZ 28.793, DZ 28.794*, DZ 28.796 (DZUP); *Rio Grande do Sul*: Caçapava, Guaritas do Sul, 3 males, 4 females, 20.IV.2012, Carneiro, Dias, Santos & Zacca *leg*., DZ 32.654, DZ 32.624, DZ 32.644, DZ 32.634, DZ 32.614, DZ 32.594, DZ 32.604 (DZUP), Pelotas, 1 male, 27.II.1956, C. Biezanko (ZSBS), 1 male, 2.VI.1959, C. Biezanko *leg*., DZ 28.797 (DZUP), Porto Alegre, Jardim Botânico, 1 male, 25.I.1980, H. Steiniger *leg*., DZ 28.798 (DZUP). PARAGUAY – *Alto Paraná*: Itakyry, General Dias, 400 m, 1 male, 15-20.I.1980, O.-C. Mielke & Miers *leg*., DZ 29.046* (DZUP); *Asunción*: 1 female, X.1943, Mis. Cient. Brasil Col. (IOC), 2 males, XI.1943 (IOC), 1 male, 20.VI.1967, no collector (ZSBS), Jardin Botanico, 1 female, [illegible data], ex-coll. H. Ebert, DZ 29.062 (DZUP), 1 female, 25.I.1967, DZ 29.065* (DZUP), 2 males, 18.VIII.1967, ex-coll. H. Ebert, DZ 34.334, DZ 34.344* (DZUP); *Cordillera*: Compania Naranjo, Barrio San José, bosque em galeria, 6 males, 5 females, 3.IX.2014, M. Benmesbah *leg.* (MB); *Guairá*: Colonia Independencia, 1 male, 7.IX.2014, M. Benmesbah *leg.* (MB); *Paraguarí*: Cerro Acahay, 4 km de la ruta, 1 male, M. Benmesbah *leg.* (MB), 4 km y 7 km (cratere) de la ruta, 4 males, 3 females, 5.IX.2014, M. Benmesbah *leg.* (MB). URUGUAY – *Montevideo*: 1 female, 31.III.1951, C. Y. Carbonell *leg*. (ZSBS). ARGENTINA – *Formosa:* Gran Guardia, 1 male, 19.XI.[19]52, J. Foerster *leg*. (ZSBS); *Salta*: Abra

Grande, Orán, 1 male, 10.I-1.III.1967, R. Golbach *leg*., DZ 29.057 (DZUP).

***Cissia phronius* (Godart, [1824]) comb. n.** (Figs 17-20, 43-47, 56-57, 76, 81)

Satyrus phronius Godart, [1824]: 466, 496; holotype: Brazil. Neotype here designated: Brazil, Paraná, São José dos Pinhais; DZUP.

Neonympha phronius; Westwood, 1851 *in* Doubleday: 376.

Euptychia phronius; Butler, 1867a: 470. – Weymer, 1911: 206, pl. 48 (male, ventral). – Biezanko *et al*., 1960a: 5. – Biezanko *et al*., 1962: 94. – Ebert, 1969: 47. – D'Abrera, 1988: 774 (male, dorsal, ventral).

Paryphthimoides phronius; Forster, 1964: 107. – Brown & Mielke, 1967: 92. – Brown, 1992: 152. – Mielke, 1994: 772. – Brown & Freitas, 2000: 104. – Motta, 2002: 157. – Uehara-Prado *et al*., 2004: 14. – Emery *et al*., 2006: 90. – Machiori & Romanowski, 2006a: 447. - Machiori & Romanowski, 2006b: 1032. – Pinheiro & Emery, 2006: 12. – Dessuy & Morais, 2007: 113. – Morais *et al*., 2007: 42. – Pinheiro & Emery, 2007: 72. – Núñez-Bustos, 2008: 82. – Giovenardi *et al*., 2008: 603. – Paz *et al.*, 2008: 145. – Peixoto & Benson, 2008: 1069. – Pinheiro *et al*., 2008: 142. – Teston & Corseuil, 2008: 47. – Betancur-Viglione, 2009: 35. – Núñez-Bustos, 2009: 75. – Peixoto & Benson, 2009: 1-14. – Grazia *et al*., 2010: 187. – Iserhard *et al*., 2010: 312. – Núñez-Bustos, 2010: 120 (male, female). – Peña *et al*., 2010: 248. – Silva *et al*., 2010: 10. – Bonfantti *et al*., 2011: 250. – Dolibaina *et al.*, 2011: 349. – Francini *et al*., 2011: 65. – Núñez-Bustos *et al*., 2011: 40. – Pedrotti *et al.* 2011: 387. – Ritter 2011: 5. – Rosa *et al.* 2011: 3. – Santos *et al*., 2011: 272. – Bellaver *et al*., 2012: 185. – Giacomet *et al*., 2012: 118. – Silva *et al.*, 2012: 295. – Uehara-Prado & Ribeiro, 2012: 174. – Machiori *et al*., 2013: 7. – Paz *et al*., 2013: 420. – García-Salik *et al*., 2014: 279. – Paz *et al*., 2014: 413. – Thiele *et al*., 2014: 7. – Caporale *et al*., 2015: 5. – Spaniol & Morais, 2015: 39. – Graciotim & Moraes, 2016: 120.

Diagnosis. Compared to all species of *Cissia*, *C. phronius* closely resamble to *C. eous*, but can be distinguished by its (1) sub-squared hindwing shape and the outer margin outwards pronunciated at CuA_1, (2) males with greasy wings and less scales gives an impression of transparence, and (3) ventral ocelli extremally reduced (sometimes the only elements seen are the silvery pupils).

Male genitalia (Figs 43-47). Tegumen flattened in dorsal view, laterally subtriangular; uncus arched downward, about 1 ½ the length of the tegumen, covered by small setae, smoothly dilated at the median region in dorsal view, apex laterally curved downwards and truncated in dorsal view; gnathos hook-like, half the length of the uncus; combination of the ventral arms of

tegumen and dorsal arms of saccus sinuous, appendix angularis short and curved downwards; anterior projection of saccus developed, cylindrical, as long as the gnathos; fultura superior absent; fultura inferior present; valva sub-rectangular covered by long hairy-like setae latero-ventrally, and short ones at the inner side, costa developed and rectangular, dorsal margin straight at the median region, ventral margin projected at the median region, apex wide and serrated; aedeagus straight, about the same length as the valva, cylindrical, anterior region bottle-shaped, posterior region about two times longer than the anterior region with bifid apex in dorsal view, distal opening ventral and longer than the proximal opening.

Female genitalia (Figs 56-57). 8th tergite rectangular; papilla analis somewhat triangle covered by long hairy-like setae at the distal region, apophysis posterior short; lamella antevaginalis fused to lamella postvaginalis, with one spiracle located at the upper margin of its lateral expansions; lamella postvaginalis orbicular and projected distally at the median region; ductus bursae membranous; corpus bursae about 1 ½ smaller than the ductus bursae, with paired signa ventrally.

Variation. In general, males are smaller (14–18 mm) than females (18–21 mm) and their wings are greasy. Intraspecific variation can be noticed by the width of the apex of the valva that can varyies between wide and narrow, similar to the apex of *C. proba*.

Distribution. This species is restrict to southern South America, specifically in Brazil, Uruguay, Paraguay and Argentina (Fig. 81). *Cissia phronius* is found in open grasslands, riparian forests, forest edge, and even antropic areas (Brown & Mielke 1967; Ebert 1969; Motta 2002; Morais *et al.* 2007; Bustos 2008; Peixoto & Benson 2008; Pinheiro *et al.* 2008; Núñez-Bustos 2010; Ritter *et al.* 2011; Rosa *et al.* 2011; Bellaver *et al.* 2012; Silva *et al.*, 2012; Caporale *et al.* 2015); also in native forests and reforested areas of Araucária, in mixed ombrophilous forest in Rio Grande do Sul, Brazil (Iserhard *et al.* 2010; Santos *et al.* 2011). In Brazil, *C. phronius* is widely distributed from Goiás, Distrito Federal, Minas Gerais, São Paulo until Rio Grande do Sul, from altitudes below to 1500 m, but is most common in elevations up to 800 m (D. R. Dolibaina, *pers. com.*). This species is sympatric and syntopic with *C. eous* in a few localities, and sympatric with *C. penelope* only in Goiás.

Biology, phenology and behaviour. Males of *C. phronius* are territorialist and defend their areas by chasing off conspecific rivals (Peixoto & Benson 2008). According to Peixoto & Benson (2009), the increase of temperature during the dry and wet seasons is directly related to the abundance of *C. phronius* in field. *Cissia phronius* is multivoltine and flies during all year round. Similar to several other euptychiine butterflies, this species flies close to the ground, and it is also attracted to bait traps (Paz *et al.* 2014; Spaniol & Morais 2015), being one of the most

abundant species of Euptychiina in inventories (Dessuy & Moraes 2007; Thiele *et al*. 2014).

Host plants and immature stages. Larvae of *Cissia phronius* has been recorded feeding on species of Poaceae, as such *Poa annua* L., *Digitaria sanguinalis* L., *Paspalum distichum* L., *P. notatum* Flüggé and *Stenotaphrum secundatum* Kuntze (Núnez-Bustos 2010). The only information on immature stages are the rounded and yellow colouration of the eggs reported by Núnez-Bustos (2010).

Type material, neotype designation and taxonomic history. *Satyrus phronius* Godart, [1824] was described based on only one specimen [holotype] which had only the wings sent from a non-specific locality in Brazil. The description of this species (as generally occurs to many other Euptychiina species described by J. B. Godart) is very broad, not precisely defining *S. phronius*. The only character mentioned by Godart that allows the distinction between *S. phronius* and its much closed phenotypically similar *C. eous* are the ventral ocelli not surrounded by yellowish ring, being the last two extreme ringed with black. The other characters, such as the 1) DW with the outer area darker, 2) VW yellowish, 3) three transversal dark brown waved lines, 4) outer line convoluted (crenulated) also fits with the description of *E. eous*. The VFW with a single white pupil, cited by Godart, is a variable intraspecific feature of this species.

Considering that the wings [holotype] used to describe *Satyrus phronius* were not found at MNHN, NHMUK or the Royal Museum of Edinburgh, Scotland (Grimshaw 1897; O. H. H. Mielke, A. V. L. Freitas, R. Rougeri, *pers. comm.*), it is designated herein the neotype to *Satyrus phronius*; this specimen has the following labels: /Neotypus/ 19.III.1979, S.[ão] José dos Pinhais, PR [Paraná], [Brazil], 850 m, Mielke *leg*./ DZ 28.625/ Neotypus *Satyrus phronius* Godart, [1824]. T. Zacca det. 2016/. DZUP.

Examined material. 79 males, 41 females (5 specimens dissected). BRAZIL – *Goiás*: Pirenópolis, 1 male, 6.XII.1964, ex-coll. H. Ebert, DZ 28.692* (DZUP); *Minas Gerais*: Belo Horizonte, 1 male, VIII.1983, ex-coll. A. Cardoso, DZ 34.304 (DZUP); *São Paulo*: Apiaí, 900 m, 1 female, 9.X.1971, H. Ebert *leg*., DZ 28.693 (DZUP); *Paraná*: Araucária, 1 female, 2.V.1967, Moure & Mielke *leg*., DZ 28.607 (DZUP), Balsa Nova, São Luis do Purunã, 1000 m, 1 male, 12.VIII.2006, Mielke & Beltrami *leg*., DZ 34.314 (DZUP), 1 female, 23.IV.2011, Mielke, Shuey & Labus *leg*., DZ 34.354 (DZUP), Cascavel, 1 male, 8.IX.1985, Mielke & Casagrande *leg*., DZ 28.602 (DZUP), Castro, 1000 m, 1 male, 15.XI.1971, Mielke *leg*., DZ 28.605 (DZUP), 1 male, 16.I.1972, Mielke *leg*., DZ 28.610 (DZUP), 1 male, 1 female, 26.I.1972, Mielke & Tangerini *leg*., DZ 28.596, DZ 28.614 (DZUP), Curitiba, 1 female, 4.II.1968, ex-coll. H. Ebert, DZ 28.616 (DZUP), 1 female, XII.1970, A. Sakakibara *leg*., DZ 28.599 (DZUP), 1 female, 12.V.1971, Laroca *leg*., DZ 28.598 (DZUP), Cascatinha, 1 male, 30.I.1966, Mielke *leg*., DZ 28.622 (DZUP), 1 male, 23.IV.1966, DZ 5.420* (DZUP), 1 male, 30.IV.1966, DZ 28.592

(DZUP), 1 male, 8.V.1966, DZ 28.591 (DZUP), 3 males, 1 female, 9.X.1966, DZ 28.597, DZ 28.606, DZ 28.611, DZ 28.620 (DZUP), 2 females, 29.I.1977, DZ 28.603, DZ 5.421* (DZUP), 1 male, 8.II.1967, DZ 28.612 (DZUP), 1 male, 14.II.1967, DZ 28.589 (DZUP), Uberaba, Tirol das Torres, 1 male, 22.II.2009, O. Mielke *leg*., DZ 28.609 (DZUP), Diamante do Norte, Estação Ecológica do Caiuá, 22°36'24"S 52°52'14"W, 1 female, 16.V.2009, Dolibaina & Carneiro *leg*., DZ 31.166 (DZUP), Foz do Iguaçu, 1 male, 1 female, 10.XII.1966, Exc. Dept. Zoologia *leg*., DZ 28.617, DZ 28.623 (DZUP), Guarapuava, 1000 m, 1 male, 30.III.1971, Mielke & Schneider *leg*., DZ 28.600 (DZUP), 1 male, 2 females, 28.I.1972, Schneider *leg*., DZ 28.618, DZ 28.619, DZ 28.624 (DZUP), Palmas, 1100 m, 1 male, 6.II.1976, Mielke & Buzzi *leg*., DZ 28.608 (DZUP), Piraquara, 1 male, 21.III.1971, C. F. Becker *leg*., DZ 28.595 (DZUP), Ponta Grossa, 2 males, IX.1946, ex-coll. F. Justus, DZ 28.574, DZ 28.588 (DZUP), 1 female, IV.1959, DZ 28.590 (DZUP), Piriquitos, 1 male, 21.IV.1967, Moure & Mielke *leg*., DZ 28.587 (DZUP), Porto Amazonas, 1 male, 3.II.1971, Mielke & Lauterjung *leg*., DZ 28.601 (DZUP), Telêmaco Borba, 2 males, 6.X.1986, PROFAUPAR, DZ 28.593, DZ 28.594 (DZUP), Turvo, Britador, 1000 m, 1 male, 24-30.IX.2010, Dolibaina *leg*., DZ 25.702 (DZUP), União da Vitória, 750 m, 1 female, 7.XI.1985, Casagrande *leg*., DZ 28.604 (DZUP), Tijucas do Sul, 1 male, 25.II.2011, T. Zacca *leg*., DZ 37.943 (DZUP), Rincão, 900 m, 1 male, 8.II.1968, Brown & Laroca *leg*., DZ 28.615 (DZUP), 1 male, 25.II.1969, Mielke & Sakakibara *leg*., DZ 28.621 (DZUP), Ventania, 12,5 km N, 1000 m, 1 male, 29-30.I.2006, Mielke *leg*., DZ 31.156 (DZUP); *Santa Catarina*: Blumenau, 1 male, 9.IX.1971, M. Lauterjung *leg*., DZ 28.549 (DZUP), Curitibanos, 1 female, 22.II.1973, ex-coll. H. Ebert, DZ 28.563 (DZUP), Garuva, Itapoá, 1 male, 20.I.1979, Mielke *leg*., DZ 28.568 (DZUP); Joinville, 25-100 m, 2 males, 16-21.I.1971, Ebert *leg*., DZ 28.538, DZ 28.546 (DZUP), Seara, Nova Teutônia, 27°11'S 52°23'E, 1 female, IX.1977, DZ 28.529 (DZUP), 1 female, II.1981, Fritz Plaumman *leg*., DZ 35.611 (DZUP), 11 males, 1 female, XII.1981, DZ 28.520–DZ 28.527, DZ 28.530, DZ 28.533, DZ 28.534, DZ 28.535, DZ 28.536 (DZUP), 1 male, 1 females, III.1982, DZ 28.531, DZ 28.532 (DZUP), 1 female, IV.1982, DZ 28.528 (DZUP), Pinhal [Pinhalzinho?], 1 male, 1 female, 13.I.1971, Lauterjung *leg*., DZ 28.551, DZ 28.561 (DZUP), Santa Cecília, Campo Alto, 1200 m, 1 male, 27.II.1968, Moure & Mielke *leg*., DZ 28.565 (DZUP), 1 male, 13.II.1976, DZ 28.552 (DZUP), São Bento do Sul, 1 female, 5.VII.1969, ex-coll. H. Ebert, DZ 28.553 (DZUP), 1 female, VII.1969, DZ 28.545 (DZUP), 1 female, 3.XII.1969, DZ 28.547* (DZUP), 1 female, 6.XII.1969, DZ 28.557 (DZUP), 850 m, 1 female, 3.X.1971, DZ 28.569 (DZUP), 1 male, 1 female, 8.I.1971, Ebert *leg*., DZ 28.537, DZ 28.558 (DZUP), 1 male, 12.I.1971, DZ 28.543 (DZUP), 2 males, 8-10.I.1971, DZ 28.542, DZ 28.550 (DZUP), 1 female, 13.I.1971, DZ 28.559 (DZUP), 1 female, 14.I.1971, DZ 28.560 (DZUP), 2 males, 19.IV.1971, DZ 28.548, DZ 28.567 (DZUP), 1 male, 16-21.I.1971, DZ 28.544 (DZUP), 1 female, 5.VIII.1971, DZ 28.540 (DZUP), 1 male, 14.I.1973, DZ 28.562 (DZUP), 1 female, 5.III.1980, DZ 28.554 (DZUP), 2 males, 1 female, 18.X.1980, DZ 28.564, DZ 28.566, DZ 28.539* (DZUP), 2 females, X.1980, DZ 28.555, DZ 28.556 (DZUP), 1 male, no data, Ebert *leg*., DZ 28.541 (DZUP), São Joaquim, 1 male, 1-12.II.1973, ex-coll. H. Ebert, DZ 31.176 (DZUP); *Rio Grande do Sul*: Cambará do Sul, Itaimbezinho, 1 male, 13.II.1980, H. Steiniger *leg*., DZ 28.575

(DZUP), Canguçu, Sobrado Branco, 1 male, 2 females, 17.IV.2012, E. Carneiro, F. Dias, F. L. Santos & T. Zacca *leg*., DZ 37.944, DZ 37.945, DZ 37.946 (DZUP), Gramado, 1 male, 24.I.1973, ex-coll. H. Ebert, DZ 28.571 (DZUP), 1 male, 26.I.1973, DZ 28.579* (DZUP), 1 male, 28.I.1973, DZ 28.586 (DZUP), 1 male, 1 female, 29.I.1973, DZ 28.570, DZ 28.577 (DZUP), 3 males, 30.X.1974, H. Ebert *leg*., DZ 28.583, DZ 28.584, DZ 28.585 (DZUP), Gramado-Canela, 1 male, 1 female, 30.X.1974, H. & H. D. Ebert *leg*., DZ 28.572, DZ 28.580, DZ 28.581 (DZUP), Pelotas, 1 male, III.1956, ex-coll. F. Justus, DZ 28.613 (DZUP), 1 male, 29.IV.1961, Biezanko *leg*., DZ 28.582 (DZUP), 1 male, 13.II.1966, V. Becker *leg*., DZ 31.146 (DZUP), 1 female, 4.VI.1967, Biezanko *leg*., DZ 28.578 (DZUP), Porto Alegre, Morro Santana, 1 male, 15.III.1980, H. Steiniger *leg*., DZ 28.573 (DZUP), São Luiz Gonzaga, 1 male, 13.VII.1931, ex-coll. D'Almeida, DZ 28.576 (DZUP).

Discussion

Molecular and morphological based phylogenies of Euptychiina (Murray & Prowell 2005; Peña *et al.* 2010; Marín *et al*. in press.) have considered *Cissia* as a polyphyletic genus. Sampling six species of *Cissia* (*C. penelope, C. confusa, C. myncea, C. similis, C. terrestris* and a non-identified species), Murray & Prowell (2005) showed that *C. penelope* was not related to the other five presumable species of this genus, but indeed more closely related to the genera *Megisto*, *Cyllopsis* R. Felder, 1869 and *Paramacera* Butler, 1868 (all of them with species occurring in the Neartic region), or even the Neotropical *Yphthimoides* Forster, 1964. The results obtained by Peña *et al.* (2010) indicates *Paryphthimoides phronius* sister to *C. penelope*, and both as sister of *C. proba*, included in "*Megisto* clade"; this clade is sister of all the remaning genera of Euptychiina. Same conclusion was obtained by Marín *et al.* (*in press*), with *C. penelope* + *C. pompilia* sister to remaining euptychines butterflies. Morphological evidence herein presented also corroborates most of these studies, and agrees with the results recently found in an ongoing molecular phylogeny of Euptychiina performed by M. Espeland and collaborators, which has supported a clade composed by *C. penelope, C. proba, C. pompilia, C. phronius* and *C. eous*.

The genus *Atlanteuptychia* Freitas, Barbosa & Mielke, 2013 seems more closely related to *Cissia*, although Freitas *et al.* (2013) mentioned differences in the short gnathos of *Atlanteuptychia* and the "usually long gnathos in *Cissia*". It is very possible that Freitas *et al.* (2013) was referring to those species that were moved out of *Cissia* in the present study. In fact, the gnathos of *Atlanteuptychia* and *Cissia* are both short and hooked-like, in spite of that in *Atlanteuptychia* be extremally wide at the mid-basal region (Freitas *et al.* 2013: 664, fig. 7). Similar gnathos is also found in *Chloreuptychia catarina* (Staudinger, [1886]), *Chl. hewitsoni*

(Butler, 1867) and *Chl. tolumnia* (Cramer, 1777) (see illustrations in Forster 1964: 120-121, figs 136-138), although these species are morphologically distinct from the type species of the genus, *Chl. chlorimene* (Hübner, [1819]) (= *Chl. chloris* in Forster 1964: 120, fig. 133). Curiously, Freitas *et al.* (2013) also mentioned similarities between *Atlanteuptychia* and these species of *Chloreuptychia* in relation to the conspicuous androconial tuft on the male DHW, and the male secondary sexual structure on the abdomen. The glabrous eyes is also a feature shared between *Cissia, Chloreuptychia* Forster, 1964 and *Atlanteuptychia*, and the elongated silvery incomplete ocellus in M_3-CuA_1 on VHW is shared between the two former genera. This kind of ocellus is also found in several species of *Magneuptychia* Forster, 1964 and *Yphthimoides* Forster, 1964, but they disagree in several morphologic aspects with *Cissia*, such as by the hairy eyes, venation, and a very long and sinuous gnathos.

As female genitalia has only being recently used in Euptychiina taxonomic studies, it is still difficult to discuss the affinities between *Cissia* and other genera based on this structure, although some characters have demonstrated to be useful to distinguished *Cissia* and *Paryphthimoides* (see Chapter 1), such as the fusion of the lamella antevaginalis and postvaginalis, evident spiracle at the lateral expansions of the lamella antevaginalis, and oblong or elliptical shape of the lamella postvaginalis

It is here proposed *Cissia* containing five species: *C. penelope*, *C. pompilia*, *C. proba, C. eous* and *C. phronius*, widely distributed in the Neotropical region from south Mexico to northeastern Argentina (Fig. 76). As shown, several morphological features supports this new taxonomic arrangement, such as the absence of setae in the eyes, wing patterns and venation, as well as the genitalia morphology. The latter two, surprisingly contradicts Singer's *et al.* (1983) statement that the wings and male genitalia do not provided clear characters to delimited *Cissia*. Male and female genitalia are the most reliable and stable evidence to differenciate *Cissia* from the other Euptychiina genera, as well to species identification. Several recent publications on Euptychiina have been demonstrated that the genitalic characters are valuable to separate the genera. Even studies using DNA barcoding technique are corroborating the studies that have only used traditional taxonomy. Once again, comparative morphological studies have demonstrated to be an useful, reliable and economic tool (compared to molecular data) for delimitating most of the Euptychiina genera, agreeing with other recent studies on this group (eg.: Siewert 2013; Zacca *et al*. 2013, 2014, 2016; Freitas *et al*. 2015, 2016; Nahakara *et al*. 2015).

Among all the species of *Cissia*, *C. pompilia* stands out by its remarkable seasonal polyphenism that historically lead to the description of three taxa for the same species. This

species occurs in dry forested regions in Central and South America, with severe to absolute dry season in most part of the year, and rains falling sporadically. The seasonal polyphenism in satyrine butterflies has been documented in some Brazilian, African and Australian species (Brakefield & Larsen 1984; Brakefield 1987; Roskam & Brakefield 1999; Freitas 2007; Freitas *et al.* 2010; Zacca *et al.* 2014). This phenomenon seems related to temperature variation that the larvae are submitted prior the pupation during the wet/dry seasons (Brakefield & Reitsma 1991; Brakefield & Frankino 2009; Simpson *et al.* 2012). In Euptychiina it seems directely affecting the coloration and size of the wings elements, but their shape and location are not affected by the environmental factors (Nijhout 1991).

Although the immature stages are beyond of the scope of the present study, recent studies have indicated that occurrence of four larval instars is not exclusive in *Cissia* (as suggested by Singer *et al.* 1983), being found in other phylogenetically Euptychiina distant genera (Wahlberg *et al.* 2009; Peña *et al.* 2010; Marín *et al.* in prep.), such as *Posttaygetis* Forster, 1964 (Murray 2003), *Taygetis* Hübner, [1819] (Murray 2001), *Forsterinaria* Gray, 1973 (Freitas & Peña 2006) and *Hermeuptychia* Forster, 1964 (Cosmo *et al.* 2014). The number of larval instars does not seem a reliable feature to exclusively definied the genera of Euptychiina, especially considering that some of them, such as *Taydebis* Freitas, 2003, *Magneuptychia* and *Moneuptychia* Forster, 1964 may have five larval instars (Freitas 2003, 2007; Kaminski & Freitas 2008; Freitas *et al.* 2015). In the other hand, morphological characters related to egg, body colour, size and shape of the cephalic horns or scoli of the larvae and pupae seems to be more informative in the generic and interespecific level. Future studies focusing in detailed comparative morphology of the immature stages of *Cissia*, *Magneuptychia* and *Paryphthimoides* are in need to verify if the number of larval instars are congruent for each genera or it is a variable character.

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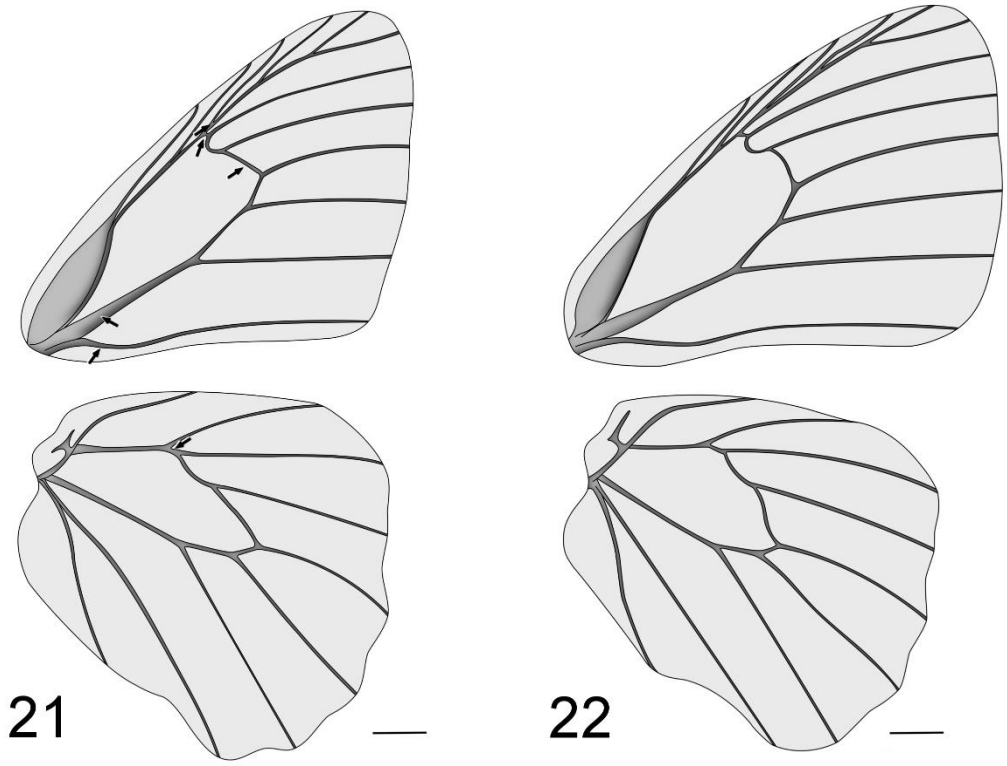
Table 1. Changing of *Cissia* Doubleday, 1848 concepts and historical sketch of the species placed into this genus since its description.

Doubleday (1848)	**Butler (1867a)**	**Butler (1867b)**	**Butler (1868)**	**Butler (1877)**	**Godman & Salvin (1879-1901)**	**Dyar (1902)**
***Cissia* Doubleday, 1948**	***Euptychia*/ "Division 1"**	***Euptychia***	***Euptychia*/ "*Megisto* section"**	***Euptychia* / *"ocypete* group"**	***Euptychia*/ "Group d, subgroup a"**	***Cissia***
C. clarissa (Cramer, 1782)	*E. clarissa*	*E. themis* Butler, 1867	*E. clarissa*	*E. labe*	*E. labe*	*C. eurytus* (Fabricius, 1775)
C. ? crantor (Fabricius, 1793)	*E. crantor*		*E. myncea*	*E. myncea*	*E. pieria*	*C. mitchelli* (French, 1889)
	E. myncea Butler, 1867		*E. palladia*	*E. palladia*	*E. terrestris*	*C. rubricata* (Edwards, 1872)
	E. palladia Butler, 1867		*E. terrestris*	*E. penelope*	*E. cleophes* Godman & Salvin, 1889	*C. sosybius* (Fabricius, 1793)
	E. pieria Butler, 1867		*E. themis*	*E. pieria*	*E. myncea*	
	E. similis Butler, 1867		*E. usitata*	*E. terrestris*	***Euptychia*/ "Group d, subgroup b"**	
	E. terrestris Butler, 1867		*E. similis*	*E. themis*	*E. similis*	
	E. themis **nom. nud.**		*E. pieria*	*E. undina*		
	E. undina Butler, 1867		*E. crantor*	*E. usitata*		
			E. pompilia	*E. crantor*		

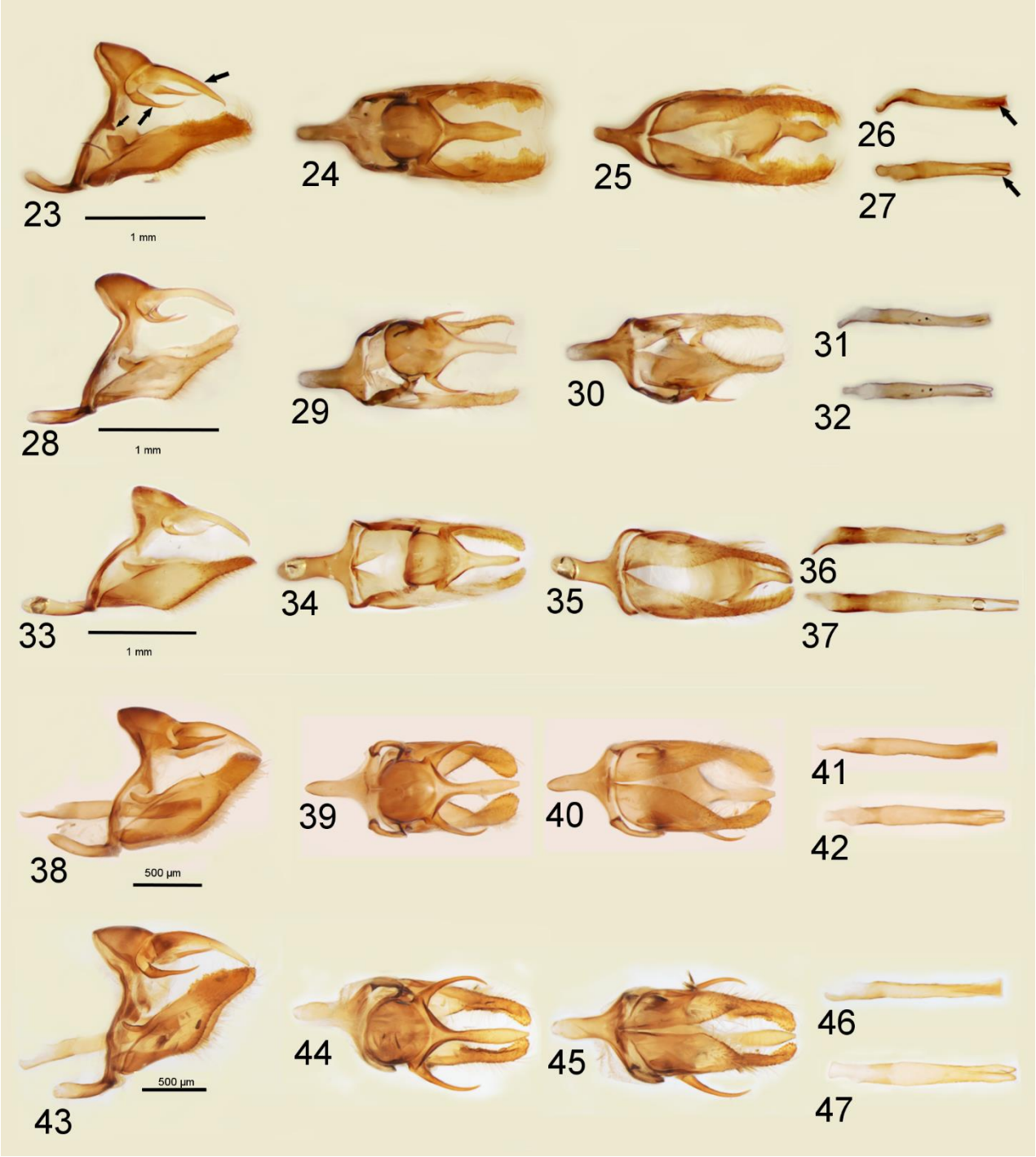
(Table 1: Continuation)

Weymer (1911)	Forster (1964)	Singer *et al.* (1983)	DeVries (1987)	Lamas (2004)	Present paper
***Euptychia* / "*ocypete* group"**	***Argyreuptychia* Forster, 1964**	***Cissia***	***Cissia***	***Cissia***	***Cissia***
E. myncea	*A. penelope*	*C. agnata* (Schaus, 1913)	*C. agnata*	*C. cleophes*	*C. penelope* (= *P. clarissa*) (= *E. moneta* **syn. n.**)
E. labe	*A. palladia*	*C. confusa* (Staudinger, 1887)	*C. alcinoe* (Felder, 1867)	*C. confusa*	*C. pompilia* (= *N. thelete*) (= *E. usitata*) (= *E. usitata* f. *pieria*) (= *E. usitata* f. *pompilia*) (= *E. usitata* f. *thelete*) (= *E. pieria*)
E. palladia	*A. moneta*	*C. drymo* (Schaus, 1913)	*C. calixta* (Butler, 1877)	*C. joycea*	*C. proba*
E. terrestris	*A. pytheus*	*C. gomezi* Singer, DeVries & Ehrlich, 1983	*C. confusa*	*C. labe*	*C. eous* **comb. n.** (= *Paryphthimoides bahneri* Anken, 1994) (= *P. kiliani* Anken, 1999)
E. moneta Weymer, 1911	*A. lesbia*	*C. joycea* Singer, DeVries & Ehrlich, 1983	*C. drymo*	*C. lesbia*	*C. phronius* **comb. n.**
E. penelope (= *E. penelope* f. *pytheus*)	*A. proba* (= *E. mariameliae*)	*C. labe*	*C. gigas* (Butler, 1867)	*C. moneta*	
E. similis (= *E. similis* f. *themis*) (=*E. similis* f. *undina*)	***Vareuptychia* Forster, 1964**	*C. libye* (Linnaeus, 1767)	*C. gomezi*	*C. myncea* (= *Papilio myncena* Stoll, 1782) (= *P. crantor* Fabricius, 1793) (= *Neonympha clerica* Herrich-Schäffer, 1865 **repl. name)** (= *N. thobiei* Capronnier, 1881) (= *E. pytheus*)	
E. cleophes	*V. similis*	*C. myncea*	*C. gulnare* (Butler, 1870)	*C. palladia*	
E. usitata (= *E. usitata* f. pieria) (= *E. usitata* f. *pompilia*) (= *E. usitata* f. *thelete*)	*V. usitata*	*C. palladia*	*C. hermes* (Fabricius, 1775)	*C. penelope* (= *Papilio clarissa*)	
E. crantor		*C. penelope*	*C. hesione* (Sulzer, 1776)	*C. pompilia* (= *E. pieria*) (= *E. usitata*) (= *N. thelete*)	
***Euptychia/* "*batesii* group"**		*C. pseudoconfusa* Singer, DeVries & Ehrlich, 1983	*C. joycea*	*C. proba* (= *E. mariameliae*)	
E. lesbia		*C. terrestris*	*C. labe*	*C. pseudoconfusa*	
			C. libye	*C. similis*	
			C. metaleuca (Boisduval, 1870)	*C. terrestris*	
			C. palladia	*C. themis* (= *E. themis* ***nom. nud.***) (= *E. undina*)	
			C. pseudoconfusa		
			C. polyphemus (Butler, 1867)		
			C. renata (Cramer, 1782)		
			C. satyrina (Bates, 1865)		
			C. similis		
			C. tiessa (Hewitson, 1869)		
			C. usitata		

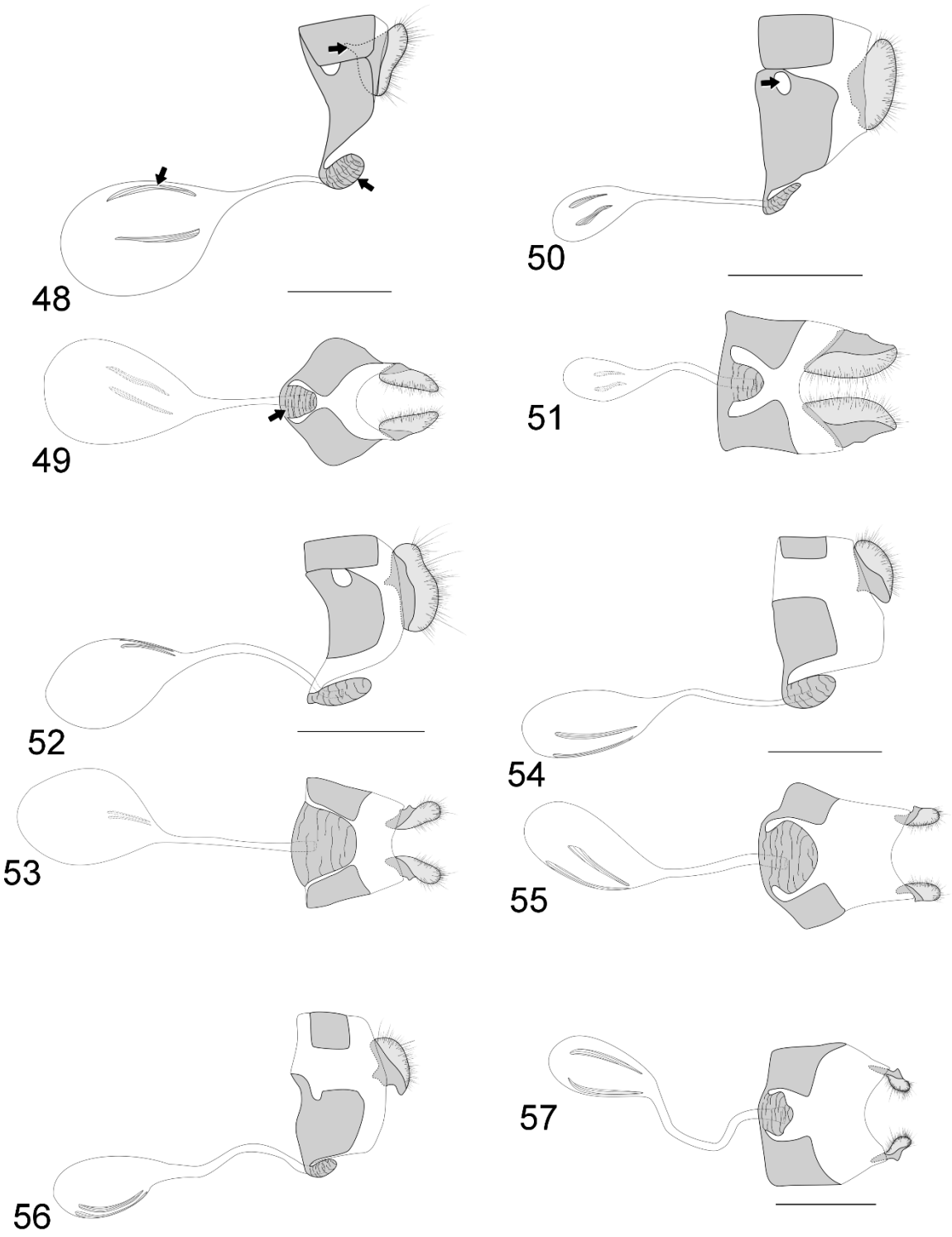
Figures 1-20. Species of *Cissia*. 1-4. *Cissia penelope*: 1. Male, dorsal; 2. Male, ventral; 3. Female, dorsal; 4. Female, ventral. 5-8. *Cissia pompilia*: 5. Male, dorsal; 6. Male, ventral; 7. Female, dorsal; 8. Female, ventral. 9-12. *Cissia proba*: 9. Male, dorsal; 10. Male, ventral; 11. Female, dorsal; 12. Female, ventral. 13-16. *Cissia eous*: 13. Male, dorsal; 14. Male, ventral; 15. Female, dorsal; 16. Female, ventral. 17-20. *Cissia phronius*: 17. Neotype male, dorsal; 18. Neotype male, ventral; 19. Female, dorsal; 20. Female, ventral. Scale = 1 cm. Setae indicates remarkable features among the species of the genus.



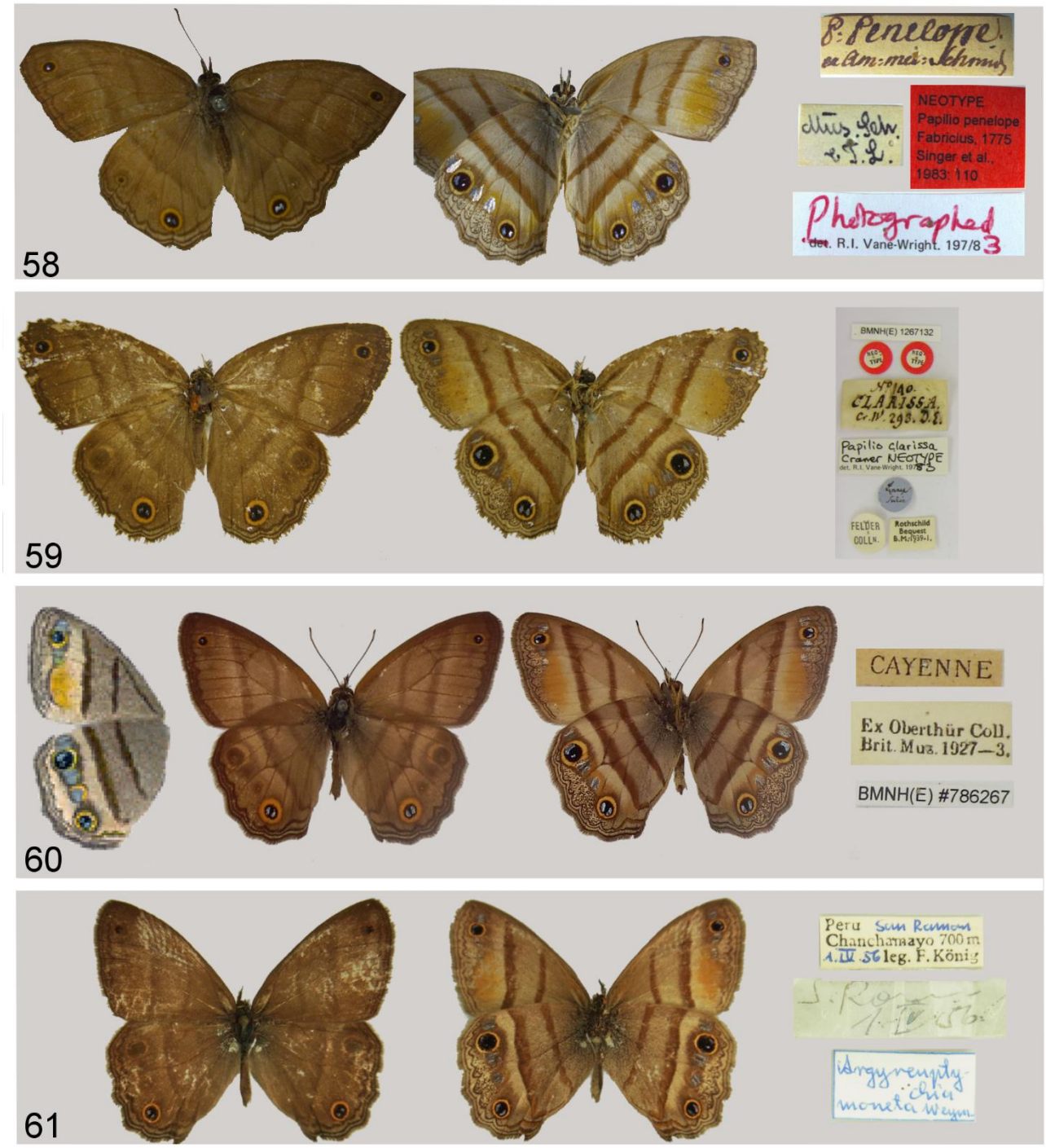
Figures 21-22. Wing venation of *Cissia penelope*. 21. Male; 22. Female. Scale = 1 cm. Setae indicates remarkable features among the species of the genus.



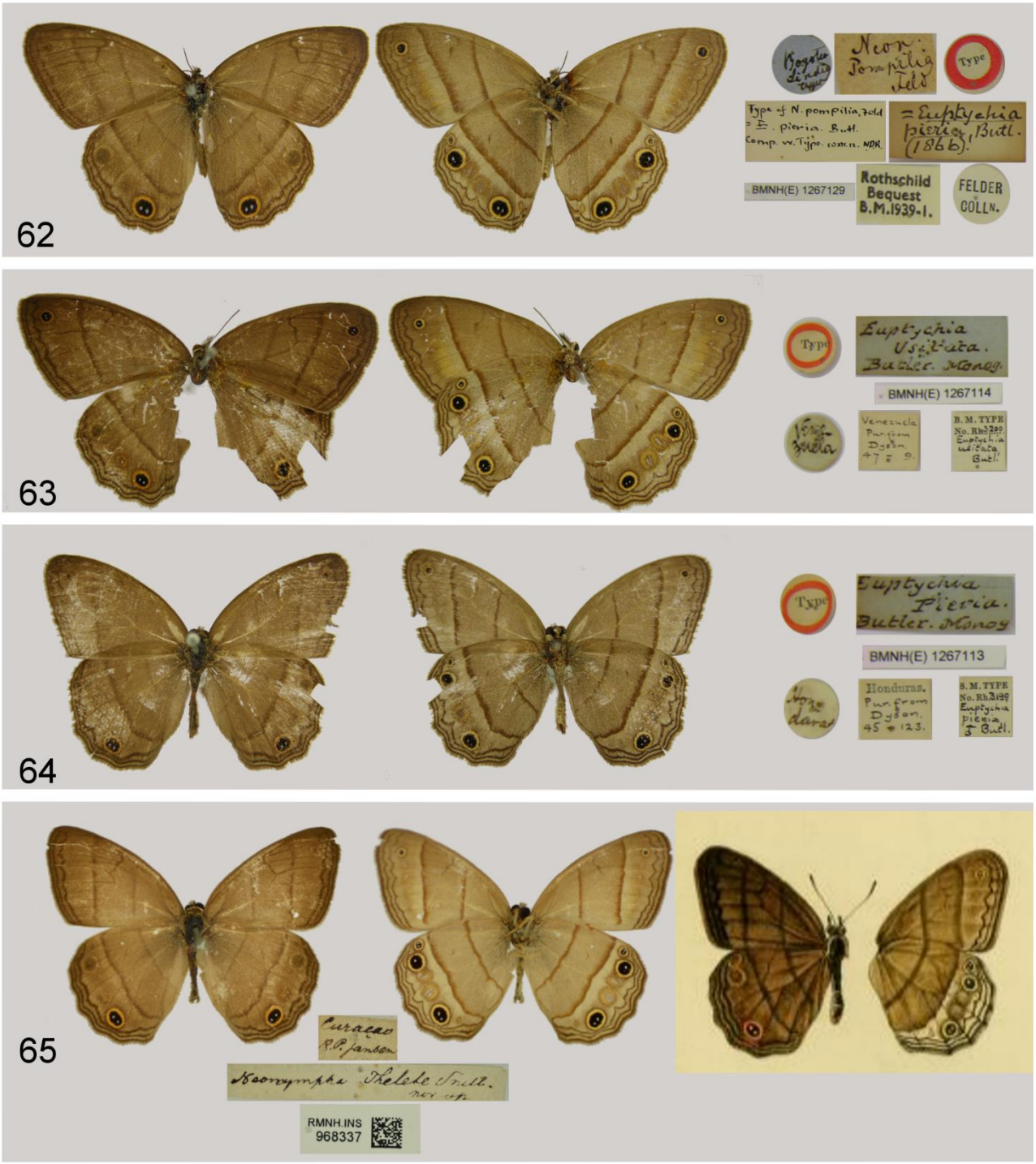
Figures 23-47. Male genitalia of species of *Cissia*. 23-27. *Cissia penelope*: 23. Lateral; 24. Dorsal; 25. Ventral; 26. Aedeagus, lateral; 27. Aedeagus, dorsal. 28-32. *Cissia pompilia*: 28. Lateral; 29. Dorsal; 30. Ventral; 31. Aedeagus, lateral; 32. Aedeagus, dorsal. 33-37. *Cissia proba*: 33. Lateral; 34. Dorsal; 35. Ventral; 36. Aedeagus, lateral; 37. Aedeagus, dorsal. 38-42. *Cissia eous*: 38. Lateral; 39. Dorsal; 40. Ventral; 41. Aedeagus, lateral; 42. Aedeagus, dorsal. 43-47. *Cissia phronius*: 43. Lateral; 44. Dorsal; 45. Ventral; 46. Aedeagus, lateral; 47. Aedeagus, dorsal. Black arrow indicating similarities of gnathos, appendix angularis, uncus and posterior region of aedeagus between the species.



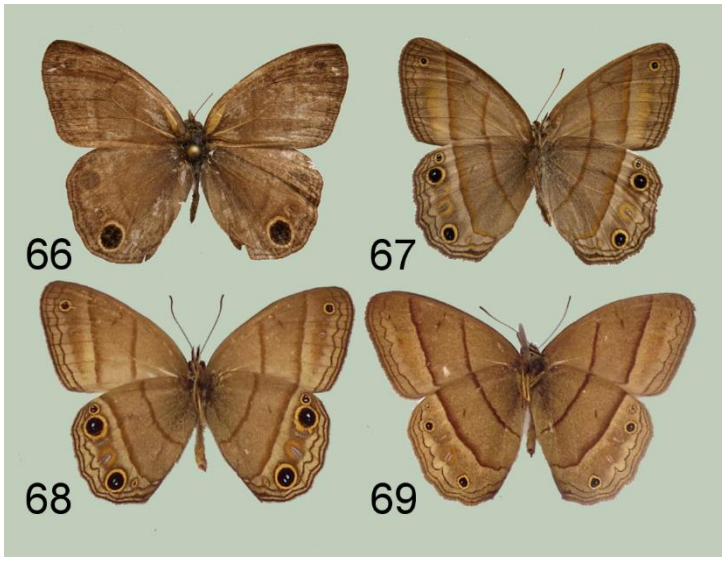
Figures 48-57. Female genitalia of species of *Cissia*. 48-49. *Cissia penelope*: 48. Lateral; 49. Ventral. 50-51. *Cissia pompilia*: 50. Lateral; 51. Ventral. 52-53. *Cissia proba*: 52. Lateral; 53. Ventral. 54-55. *Cissia eous*: 54. Lateral; 55. Ventral. 56-57. *Cissia phronius*: 56. Lateral; 57. Ventral. Scale = 1 mm. Setae indicates remarkable features among the species of the genus.



Figures 58-61. Types and historical specimens of *Cissia penelope*: 58. Neotype male (dorsal, ventral) of *Papilio penelope* Fabricius, 1775; 59. Neotype female (dorsal, ventral) of *Papilio clarissa* Cramer, 1782; 60. Original illustration (left) and neotype male (dorsal, ventral) of *Euptychia moneta* Weymer, 1911; 61. Specimen from Peru misidentified as syntype of *Euptychia moneta* (dorsal, ventral) at ZSBS. [Photos 58-60: B. Huertas, Trustees of the Natural History Museum, London. Photo 61: A. Hausmann and U. Buchsbaum].

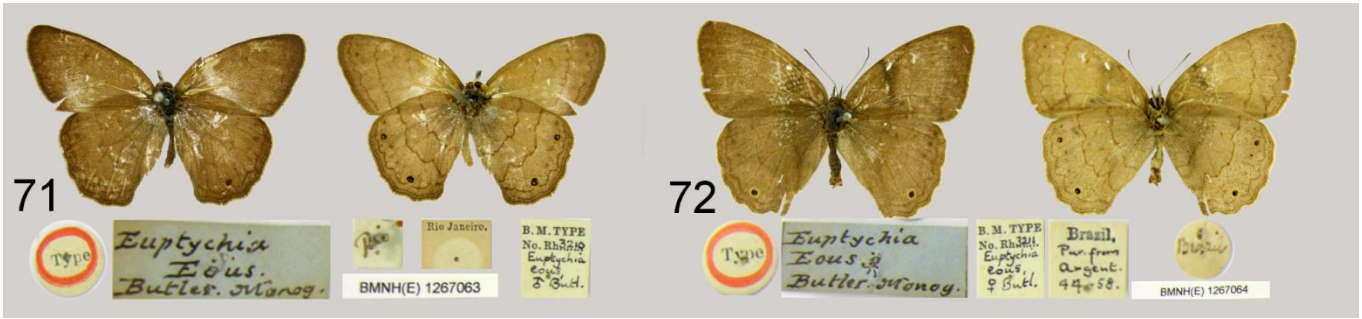


Figures 62-65. Types and historical specimens of *Cissia pompilia*: 62. Lectotype male (dorsal, ventral) of *Neonympha pompilia* C. Felder & R. Felder, 1867; 63. Lectotype female (dorsal, ventral) of *Euptychia usitata* Butler, 1867; 64. Lectotype male (dorsal, ventral) of *Euptychia pieria* Butler, 1867; 65. Original illustration (right) and lectotype male (dorsal, ventral) of *Neonympha thelete* Snellen, 1887. [Photos 62-64: B. Huertas, Trustees of the Natural History Museum, London. Photo 65: E. G. Miracle].



Figures 66-69. Polyphenism seasonal of *Cissia pompilia*: 66-67. Costa Rica, Puntarenas, Osa, collected in February: male – 66. Dorsal, 67. Ventral; 68. Panama, collected in July (wet season): male; 69. Mexico, collected in January (dry season): male. © Trustees of the Natural History Museum, London.

Figure 70. Original illustration (left) and lectotype male (dorsal, ventral) of *Euptychia erigone* f. *proba* Weymer, 1911. [Photo: © 2012 Senckenberg Museum für Tierkunde].



Figures 71-72. Syntypes of *Euptychia eous* Butler, 1867: 71. Neotype male (dorsal, ventral); 72. Female (dorsal, ventral). [Photos 62-64: B. Huertas, Trustees of the Natural History Museum, London].

Figures 73-75. Individuals *in situ*: 73. *Cissia penelope*, female (Venezuela), 74. *Cissia pompilia*, male (Colombia), 75. *Cissia proba*, male (Junín, Peru). [Photos 73: Renato Mattei; 74: Juan Guillermo Jaramillo; 75: David Geale].

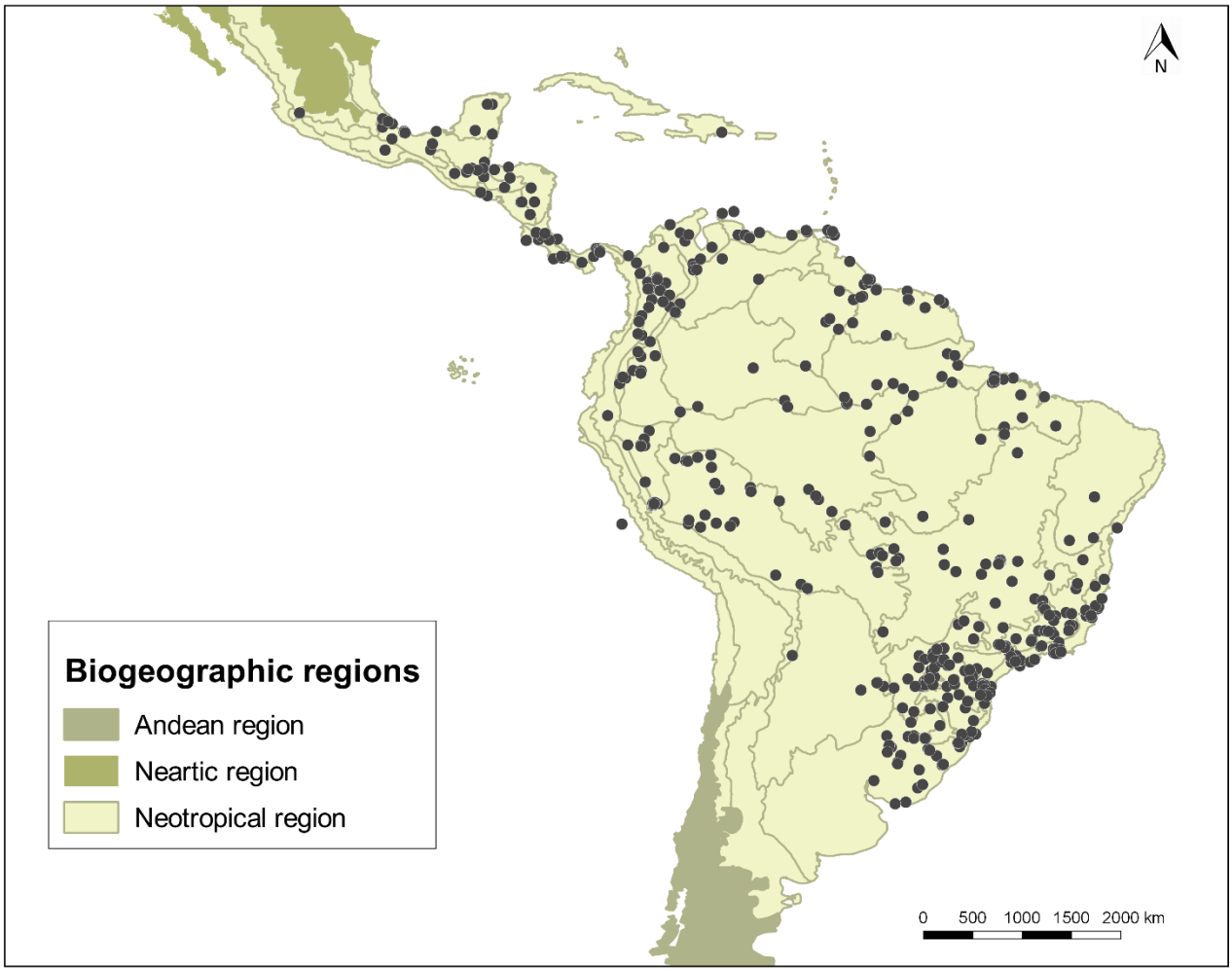


Figure 76. Geographical distribution of *Cissia*.

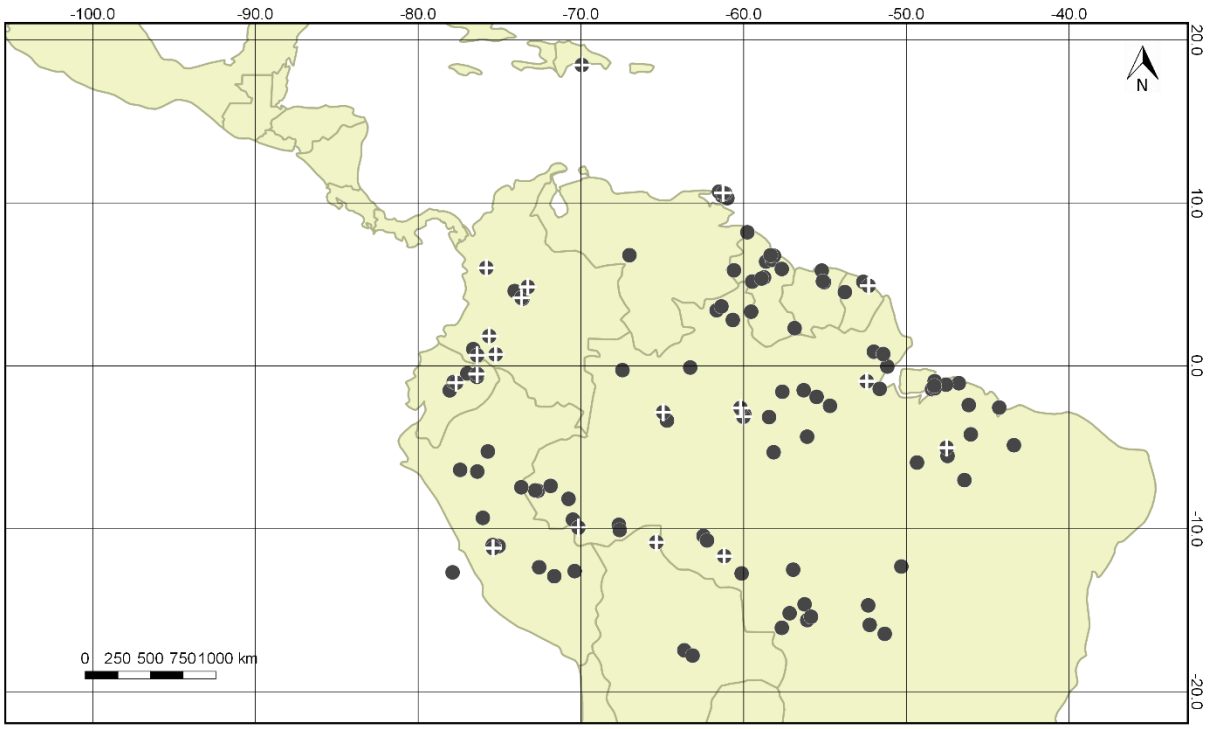


Figure 77. Geographical distribution of *Cissia penelope*. White cross indicates literature records.

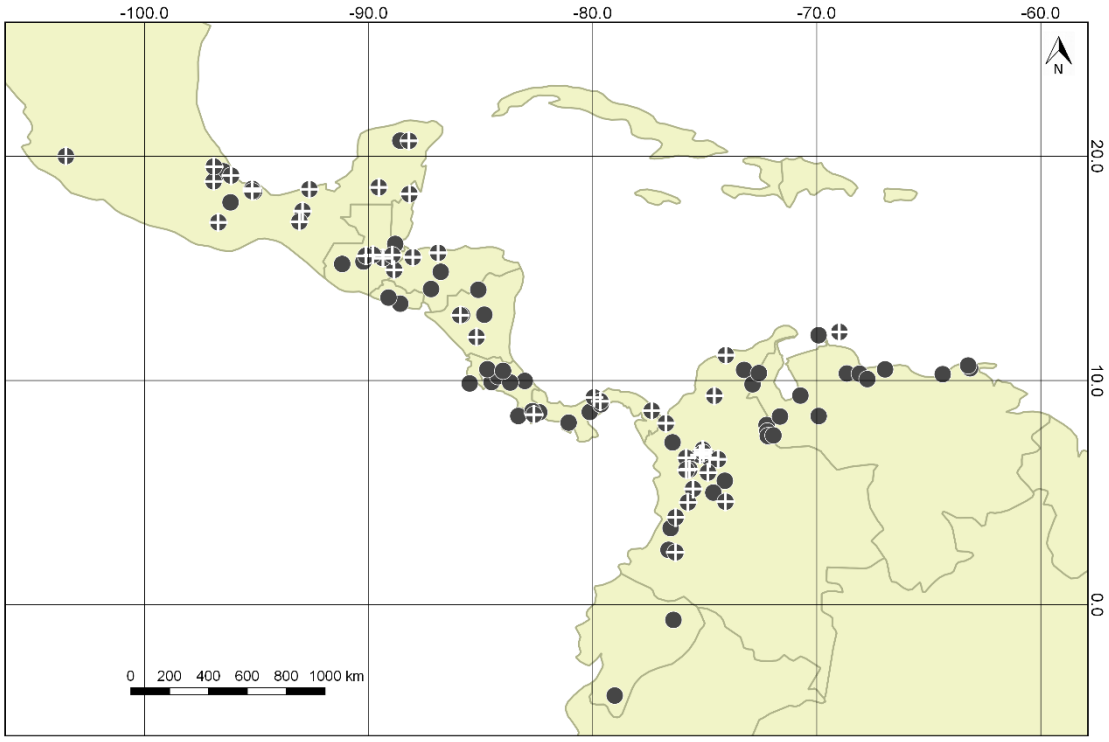


Figure 78. Geographical distribution of *Cissia pompilia*. White cross indicates literature records.

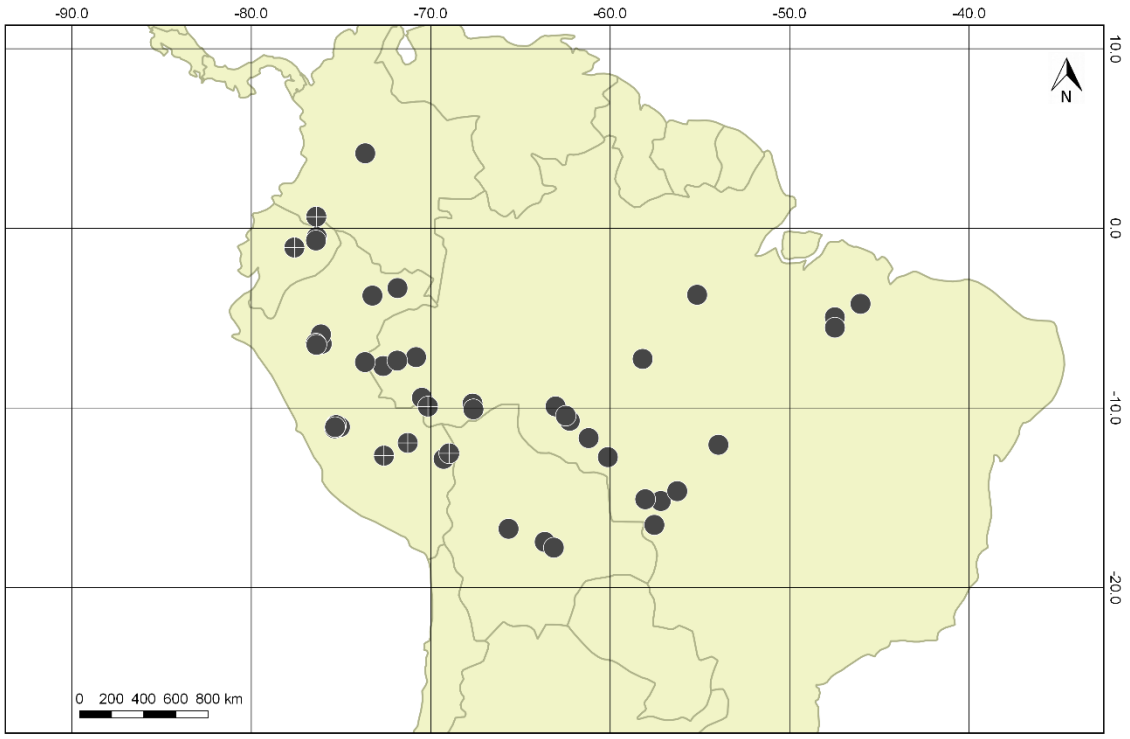


Figure 79. Geographical distribution of *Cissia proba.* White cross indicates literature records.

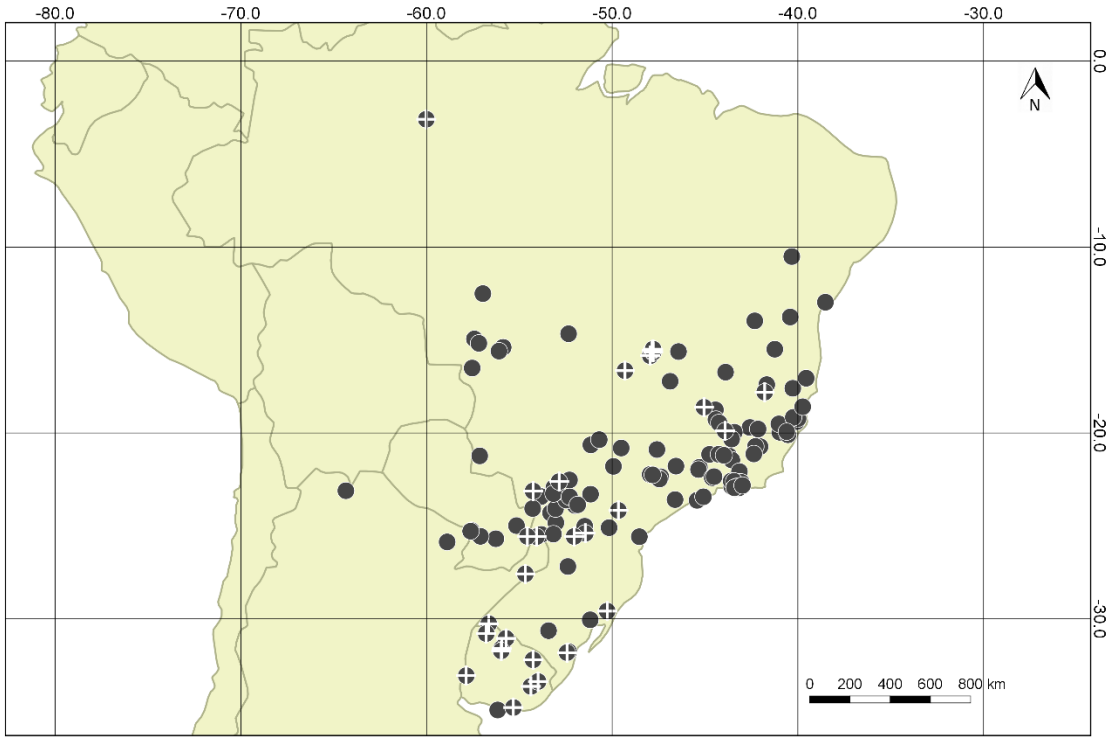


Figure 80. Geographical distribution of *Cissia eous.* White cross indicates literature records.

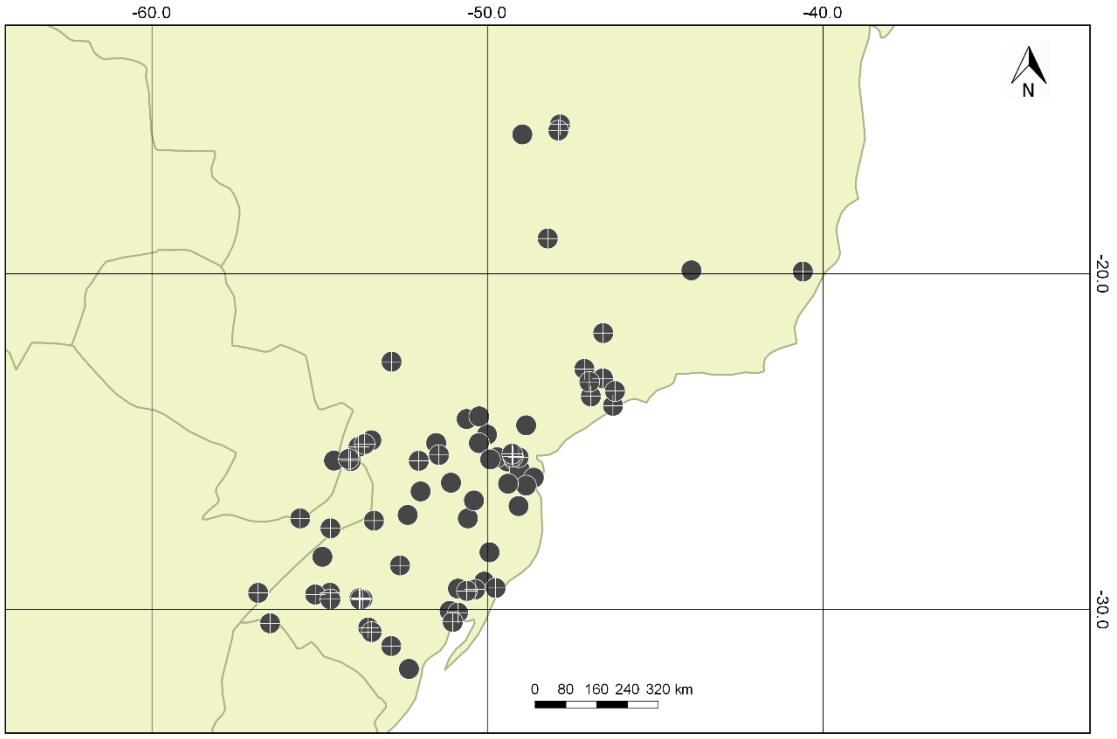


Figure 81. Geographical distribution of *Cissia phronius*. White cross indicates literature records.

Revalidation of *Vareuptychia* Forster, 1964, and description of three new genera and four new species of Euptychiina (Lepidoptera: Nymphalidae, Satyrinae)

Abstract. The genus *Vareuptychia* Forster, 1964 is revalidated and comprises two species, *V. similis* (Butler, 1867) **comb. n.**, **stat. rest.** and *V. themis* (Butler, 1867) **comb. n.** *Genus D* Zacca, Casagrande & Mielke **gen. n.** is described to allocate *Euptychia palladia* Butler, 1867, *E. labe* Butler, 1870 and *E. lesbia* Staudinger, [1886]. *Genus E* Zacca, Casagrande & Mielke **gen. n.** is described to allocate *Cissia pseudoconfusa* Singer, DeVries & Ehrlich, 1983 and *C. joyceae* Singer, DeVries & Ehrlich, 1983. *Genus F* Zacca, Casagrande & Mielke **gen. n.** is described to allocate *Papilio myncea* Cramer, 1780, *Cissia maripa* Brévignon, 2005 and *Euptychia confusa* Staudinger, 1887 (with a new subspecies *Genus F confusa* ssp.1 Zacca, Casagrande & Mielke **ssp. n.**) and four new species herein described. *Euptychia cleophes* Godman & Salvin, 1809 is transferred to *Megisto* Hübner, [1819], which expands the distributional range of this genus to Neotropical region. Lectotypes are designated to *Euptychia similis* Butler, 1867, *E. themis* Butler, 1867, *E. undina* Butler, 1870, *E. lesbia* Staudinger, [1886], *E. pytheus* Möschler, 1882 and *E. myncea isolata* Kaye, 1921. For all species are provided comparative diagnosis, historical systematic catalogue, descriptions and illustrations of the male and female genitalia, comments on intraspecific variation, sexual dimorphism, hostplants and biology. Maps with the compilation of the distributional records are also provided.

Keywords. Amazon rainforest, *Cissia*, Central America, Dry forests, Euptychiina, *Magneuptychia fugitiva*, *Megisto*, Mexico, Taxonomy.

Introduction

After the revision of *Cissia* Doubleday, 1848 (see Chapter 3), it was observed that the following 11 species have failed to be allocated in this genus because they did not have its diagnostic characters: *Euptychia similis* Butler, 1867, *E. themis* Butler, 1867, *E. cleophes* Godman & Salvin, 1889, *E. palladia* Butler, 1867, *E. labe* Butler, 1870, *E. lesbia* Staudinger, [1886], *E. confusa* Staudinger, 1887, *Cissia joyceae* Singer, DeVries &

Ehrlich, 1983, *C. pseudoconfusa* Singer, DeVries & Ehrlich, 1983, *C. maripa* Brévignon, 2005 and *Papilio myncea* Cramer, 1780. This paper continues the taxonomic revision of these species, and describes three new genera of Euptychiina with discussion of their systematic position in the subtribe.

Material and Methods

There were examined 790 specimens, including all available types, from seven public and private collections. The following acronyms are used throughout the text, and the collections not personally examined are marked below with an asterisk:

DZUP	Coleção Pe. Jesus de Santiago Moure, Universidade Federal do Paraná, Paraná, Brazil
MGCL	McGuire Center for Lepidoptera and Biodiversity, University of Florida, Gainesville, USA
MZUJ	Muzeum Zoologiczne Uniwersytetu Jagiellonskiego, Krakow, Poland
NHMUK	Natural History Museum, London, United Kingdom
ZMHU	Museum für Naturkunde der Humboldt-Universität, Berlin, Germany
ZSBS	Zoologische Staatssammlung München, Munich, Germany*
ZUEC	Museu de Zoologia da Universidade Estadual de Campinas, São Paulo, Brazil

The repository of the photos of all types known taken by Gerardo Lamas (Museo de Historia Natural Universidad Nacional Mayor de San Marcos, Peru) available in Butterflies of America website (Warren *et al.* 2016) was consulted. For further methodological and terminology information, see Chapter 1.

Results

Vareuptychia Forster, 1964 is revalidated and includes two species, *V. similis* (Butler, 1867) (type-species) and *V. themis* (Butler, 1867). Three new Euptychiina genera are described; (1) *Genus D* Zacca, Casagrande & Mielke, **gen. n.** with three species, *Genus D labe* (Butler, 1870) (type-species), *Genus D lesbia* (Staudinger, [1886]) and *Genus D palladia*; (2) *Genus E* Zacca, Casagrande & Mielke, **gen. n.** with two species, *Genus E pseudoconfusa* (Singer, DeVries & Ehrlich, 1983) (type-species) and *Genus E*

joyceae (Singer, DeVries & Ehrlich, 1983), and (3) *Genus F* Zacca, Casagrande & Mielke, **gen. n.** with three species, *Genus F myncea*, *Genus F maripa* and *Genus E confusa*. In addition, *Euptychia cleophes* is transfered to *Megisto,* which now contains three species, *M. cymela*, *M. rubricata* and *M. cleophes*.

***Vareuptychia* Forster, 1964 stat. rest.**

Vareuptychia Forster, 1964: 125.

Type species. *Euptychia similis* Butler, 1867.

Diagnosis. Species of *Vareuptychia* resembles to some *Yphthimoides* Forster, 1964 species (e.g. *Y. manasses* C. Felder & R. Felder, 1867, *Y. renata* Stoll, 1780 and *Y. affinis* Butler, 1867) by the DW with ground colour varying in brown and the always present ocellus in CuA_1-CuA_2. However, VW is quite distinct of *Yphthimoides*, being more similar to some species of *Moneuptychia* Forster, 1964 (e.g. *M. montana* Freitas, 2014 and *M. pervagata* Freitas, Siewert & Mielke, 2014) by the ocelli shape and disposition. Nevertheless, *Vareuptychia* species have four small ocelli in R_{4+5}-M_1, M_1-M_2, M_2-M_3 and M_3-CuA_1 on VFW (sometimes the latter is not evident in some individuals), being the second displaced in direction to the median line and dci vein is concave and projected into the discal cell on FW (Figs 12-13). Compared to all species of *Cissia*, species of *Vareuptychia* can be distinguish by the hairy eyes (glabrous in *Cissia*), FW discal cell half length of the wing (2/3 length of the wing in *Cissia*), recurrent vein present (absent in *Cissia*) and m_2-m_3 sinuous (straight in *Cissia*) (Fig. 12), elongated and sinuous gnathos (short and hooked-like gnathos in *Cissia*) (Fig. 14), robust uncus (slender in *Cissia*), truncated apex of aedeagus (bifid apex in *Cissia*) (Fig. 14), two cornutal patches (cornuti absent in *Cissia*) (Fig. 14) and lamella antevaginalis with a wrinkled appearance and half-orbicular in ventral view (orbicular or obovate in *Cissia*) (Fig. 25).

Discussion. *Vareuptychia* was erected by Forster (1964) to include *Euptychia similis* Butler, 1867 (type-species) and *Euptychia usitata* Butler, 1867, based on non-substantial morphological characters. Although Forster mentioned that the male genitalia exhibits features that allows to grouping these species, it is virtually impossible to see any similarity between *E. similis* and *E. usitata*, comparing their illustrations (Forster, 1964:

125, figs 145-146). Furthermore, the illustration of male genitalia of *E. usitata* provided by Forster agrees with *Cissia pompilia* (C. Felder & R. Felder, 1867) (see discussion in Chapter 3, under *Cissia pompilia*). Lamas (2004) treated *Vareuptychia* as a synonym of *Cissia*, and several authors have accepted this proposal after him. In the present study, *Vareuptychia* is revalidated based on several morphological evidence from wing pattern, venation, male and female genitalia (see Diagnosis section) agreeing with molecular and morphological phylogenies (M. Espeland *et al.*, *in prep.* and M. Marín *et al.*, *in press.*, respectively). Tibial spurs in midlegs cited by Miller (1968) as a probably synapomorphy of *Cissia* Forster, 1964 is also found in species of *Vareuptychia*, as well as in several other genera of Euptychiina (e.g. *Euptychia* Hübner, 1818, *Magneuptychia* Forster, 1964 and *Graphita* Nakahara, Marín & Barbosa, 2016).

Checklist of *Vareuptychia*

Vareuptychia Forster, 1964

Vareuptychia similis (Butler, 1867) **comb. n., stat. rest.**

Vareuptychia themis (Butler, 1867) **comb. n.**

Euptychia undina Butler, 1870

***Vareuptychia similis* (Butler, 1867)** (Figs 1-4, 9, 14-18, 24-25, 28-29) **comb. n., stat. rest.**

Euptychia similis Butler, 1867a: 463; syntypes: Guatemala, Central Valleys. Lectotype male here designated: Guatemala, Central Valleys; NHMUK (examined). – Butler, 1868: 17. – Butler, 1870: 252. – Kirby, 1871: 48. – Godman & Salvin, [1880]: 81, pl. 8. fig. 4. – Godman & Salvin, 1901: 654. – Weymer, 1911: 200. – Gaede, 1931: 465. – DeVries, 1987: 272, pl. 48, figs. 20-21 [misidentification]. – D'Abrera, 1988: 773 (female).

Vareuptychia similis; Forster, 1964: 125, fig. 145 (male genitalia). – Ackery, 1988: 115, tab. 9. – Austin, 1996: 33. – Llorente-Bousquets *et al*., 1995: 45.

Vareuptychia themis; Lewis, 1973: pl. 65, fig. 11 [misidentification].

Cissia similis; DeVries, 1987: 272. – Meerman & Boomsma, 1993: 42. – Pozo *et al*., 2003: 516. – Frontier Nicaragua, 2004: appendix 3e. – Lamas, 2004: 218. – Luis-Martínez et al., 2004: 349. – Harvey *et al*., 2005: 226. – Murray & Prowell, 2005: 69. – López & Ibrahim, 2007: 24, 36. – Hernández-Mejía *et al*., 2008: 125. – Marín & Uribe, 2009: 25 [misidentification].

– Montero-Abril *et al*., 2009: 173. – Marín *et al*., 2011: 7, fig. 3 (male). – Luis-Martínez *et al.*, 2011: 23. – Miller *et al*., 2012: 58. – Nakahara *et al*., 2012: 359-362, fig. 5 (male genitalia). – Figueroa-Fernandéz *et al.*, 2014: 63. – Luis-Martínez *et al*., 2016: 216.

Cissia similes [sic]; Pozo *et al*., 2008: 415.

Diagnosis. *Vareuptychia similis* differs from *V. themis* by submarginal line strongly crenulated on its entire extension and distally pointed (Figs 2, 4) (slightly crenulated from costal margin to CuA_1 and straight from CuA_1 to inner margin in *V. themis*), VHW with faded ocelli from Rs to CuA_1 (not faded in *V. themis* – although some individuals can have slightly faded ocelli in M_2-M_3 and M_3-CuA_1) and absence of pupils in ocellus CuA_1-CuA_2 in VHW (two pupils in *V. themis*). Genitalia morphology is somewhat homogeneous in species of *Vareuptychia*, but *V. similis* can be distinguished to *V. themis* by the apical projection of valvae rounded and smaller than the apex of uncus in dorsal view (Fig. 14) (pointed and larger than the apex of uncus in *V. themis*) and aedeagus longer than valvae (smaller than valvae in *V. themis*).

Male genitalia (Figs 14-18). Tegumen dorsally flattened, laterally subtriangular; uncus robust, about same length as tegumen, dorsally with mid-apical region deltoid and apex truncated; gnathos sinuous laterally, half-length of uncus, with apical region hooked-like; combination of ventral arms of tegumen and dorsal arms of saccus sinuous; appendix angularis short; anterior projection of saccus developed, cylindrical, and same length as gnathos; fultura inferior present; fultura superior absent; valva rhombic covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa developed and sub-squared, dorsal margin straight, apical projection rounded and smaller than apex of uncus, ventral margin projected at median region; aedeagus straight, longer than valva, anterior region bottle-shaped, posterior region about 1 ½ longer than anterior region, distal margin dorsally truncated, distal opening ventral smaller than proximal opening.

Female genitalia (Figs 24-25). 8^{th} tergite rectangular; papilla analis somewhat oblong, covered by long hairy-like setae at distal region, apophysis posterior absent; lamella antevaginalis with wrinkled appearance and half-orbicular in ventral view; lamella postvaginalis absent; ductus bursae membranous; corpus bursae smaller than ductus bursae, with paired signa latero-dorsally.

Variation. Intraspecific variation is noticed by the ground colour of the VW which can

vary between pale to dark brown. The yellow submarginal patch in VFW can be faded or absent in some individuals. Ocelli size is also variable in VHW, but always smaller than those ocelli in *V. themis.*

Distribution. This species is distributed widely from Mexico to Venezuela in altitudes below to 1500 m (Fig. 29). *Vareuptychia similis* has not been collected in the last 30 years in French Guiana (M. Benmesbah, pers. comm.), and the only record to this country (probably wrong) is from one old specimen deposited at NHMUK, from Nouveau Chantier, an Agricola camp in Saint Laurent du Maroni. Another probably wrong record is from an old specimen deposited at NHMUK from Manaus, Amazonas, Brazil; recent expeditions to Amazonian region, performed by members of "Laboratório de Estudos de Lepidoptera Neotropical (UFPR)", have failed to sampled this species there.

Biology and phenology. This species is multivoltine and apparently fly during all year around (Figueroa-Fernández *et al.* 2014; Miller *et al.* 2012; examined material). It is found in dry forests in association with xerophytic shrubland, secondary vegetation, pastures and riparian areas (Harvey *et al.* 2005; Montero-Abril *et al.* 2009; Figueroa-Fernández *et al.* 2014). It has been recorded feeding on decaying fruits, such as graviola, sapoti and mango (Hernández-Mejía *et al.* 2008).

Host plants and immature stages. Harvey *et al.* (2005) has cited this species flying in *Hyparrhenia rufa* (Ness) Stapf, *Brachiaria brizantha* Hochst Stapf and *B. decumbens* Stapf) grass in Nicaragua and Costa Rica, suggesting *V. similis* might use them as host plants. Apart of that, there is no other record for host plant neither immature stages.

Type material, lectotype designation and taxonomic history. *Euptychia similis* Butler, 1867 was described based on at least two specimens, one of them from Central Valleys, Guatemala and the other from an undetermined locality in Nicaragua; Butler did not provide any illustration for this species. Three years later, Butler (1870) stated that the syntype of *E. similis* from Nicaragua was, in fact, a distinct species from *E. similis* which he named *E. undina* (illustrated as *E. similis* in Butler 1867b, pl. 12, fig. 10) (see further discussion below in *Vareuptychia themis* **stat. rest.**). Two syntypes of *E. similis* were found at NHMUK from the Godman-Salvin's collection. The male specimen from Guatemala is herein designated as the lectotype of *Euptychia similis* to fix the identity of the name and avoid future misidentification. This lectotype has the following labels (separated by oblique bars): /Type H.T./ Centr[al] Valleys, Guatemala, F[rederick]

D[ucan] G[odman] & O[sbert] S[alvin]/ Central Guatemala/♂/ Godman-Salvin Coll. 1904–1. B[iologia] C[entrali] A[mericana] Lep[idoptera] Rhop[alocera] *Euptychia similis* Butl[er]/ B. M. TYPE No. Rh. 3202 *Euptychia similis* ♂Butl[er]/ Type sp. figured/ BMNH(E) 982888/; and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia similis* Butler, 1867. T. Zacca det. 2016/. NHMUK. The last two labels will be sent to the curator later.

Remarks. *Vareuptychia similis* has been misidentified as *Cissia themis* in several collections (e.g. NHMUK, DZUP, ZMHU) and literature (Lewis 1973; DeVries 1987; Marín & Uribe 2009).

Examined material. 40 males and 25 females (9 specimens dissected). MEXICO – *no specific locality*: 1 male, no data, Felder Coll., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420942 (NHMUK), 1 male, no data, Rebouch *leg*., Godman-Salvin 1904-1, BMNH(E) 1420664* (NHMUK), 2 females, no data, ex-Grose Smith, 1910, BMNH(E) 1420974, BMNH(E) 1420789 (NHMUK); *Guerrero*: 1 male, I.1916, no collector (ZSBS), 1 male, [no month].1916, Prof. M. Draudt *leg*., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1420788* (NHMUK), Acahuizotla, 914 m, 1 female, X.[no year], H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420760 (NHMUK); La Venta, 90 m, 2 males, IX.[no year], H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420730, BMNH(E) 1420761 (NHMUK), Ricón, 850 m, 1 male, 1 female, X.[no year], H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420698*, BMNH(E) 1420729 (NHMUK), Papagaio river, 365 m, 2 males, X.[no year], Godman-Salvin Coll. 1904-1, BMNH(E) 1420668, BMNH(E) 1420699 (NHMUK), Tierra Colorada, 609 m, 2 males, 3 females, X.[no year], H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420820, BMNH(E) 1420697, BMNH(E) 1420822, BMNH(E) 1420884, BMNH(E) 1420791 (NHMUK); *Mazatla*: Presidio river, 1 female, no data, Forrer *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420851 (NHMUK); *Oaxaca*: Tehuantepec, 3 males, no data, Richardson *leg*., Godman-Salvin 1904-1, BMNH(E) 1420911, BMNH(E) 1420973*, BMNH(E) 1420695 (NHMUK); *Veracruz*: Motzorongo, 1 male, XII.1923, Rosen *leg.* (ZSBS), Puente Nacional, 1 male, V.1939, Dr. Eisenberger *leg*. (ZSBS), Tierra Blanca, 1 male, 1 female, VIII.1941, Dr. Escalante *leg*., ex-coll. D'Almeida, DZ 27.892*, DZ 27.891* (DZUP), Atoyac, 1 male, 1 female, IV.[no year], H. H. Smith, Godman-Salvin Coll. 1904-1, BMNH(E) 1420757, BMNH(E) 1420912 (NHMUK); *Yucatán*: Piste, 1 female, 15.VIII.1968, Welling *leg*., DZ 27.893 (DZUP), Temax, 2 males, no data, Gaumer *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420882*, BMNH(E) 1420665 (NHMUK). GUATEMALA – *Baja Verapaz*: San Jerónimo, 2 females, no data, F. D. Godman & O. Salvin *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420726, BMNH(E) 1420819 (NHMUK), 2 females, no data, Champion *leg*., Godman-Salvin

Coll. 1904-1, BMNH(E) 1420881*, BMNH(E) 1420850 (NHMUK); *Santa Rosa*: Guazacapán, 11 males, 6 females, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420666, BMNH(E) 1420790, BMNH(E) 1420759, BMNH(E) 1420728, BMNH(E) 1420883, BMNH(E) 1420852, BMNH(E) 1420821, BMNH(E) 1420976, BMNH(E) 1420945, BMNH(E) 1420914, BMNH(E) 1420975, BMNH(E) 1420758, BMNH(E) 1420667, BMNH(E) 1420946, BMNH(E) 1420977, BMNH(E) 1420915, BMNH(E) 1420853 (NHMUK). HONDURAS – *San Pedro Sula*: 1 male, ex-coll. Fruhstorfer, BMNH(E) 1420880 (NHMUK). EL SALVADOR – *Usulután*: San Augustin, 1066 m, 2 males, IX-X.1926, A. Hall *leg*., Brit. Mus. 1927-240, BMNH(E) 1420792*, BMNH(E) 1420823 (NHMUK). COSTA RICA – *no specific locality*: 1 male, no data, Van Patten *leg*., Druce Coll., Godman-Salvin Coll. 1904-1, BMNH(E) 1420968 (NHMUK), 1 female, Coll. A. G. M. Gillott, B. M. 1929-353, BMNH(E) 1420943 (NHMUK). PANAMA – *no specific locality*: 2 males, no data, Crowley Bequest, 1901-78, BMNH(E) 1420818, BMNH(E) 1420849 (NHMUK). VENEZUELA – *Aragua*: Maracay, 1 female, XI-XII.1934, P. Vogl *leg*. (ZSBS), 500 m, 1 female, III.1968, ex-coll. N. Tangerini *leg*., DZ 32.806 (DZUP); *Guárico*: San José de Tiznados, Rio Tiznados, 1 female, XII.1972, ex-coll. N. Tangerini *leg*., DZ 32.816 (DZUP). FRENCH GUIANA – *St Laurent du Maroni*, 2 males, no data, Le Moult collection, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1420854, BMNH(E) 1420885 (NHMUK). BRAZIL – *Amazonas*: Manaus, 1 male, no data, Ex Staudinger, Godman-Salvin Coll. 1904-1, BMNH(E) 1420916 (NHMUK).

***Vareuptychia themis* (Butler, 1867) comb. n.** (Figs 5-8, 10-11, 12-13, 19-23, 26-27, 28, 30)

Euptychia themis Butler, 1867a: 104 [nom. nud].

Euptychia themis Butler, 1867b: pl. 12, fig. 13; syntypes: no locality. Lectotype male here designated: no locality; NHMUK (examined). – Butler, 1868: 16. – Kirby, 1871: 48. – Butler, 1877: 118. – Kirby, 1879: 132. – Godman & Salvin, 1901: 653. – Barcant, 1970: 159, 161, pl. 13, fig. 11. – Santini, 2004: 1056.

Euptychia undina Butler, 1870: 252; syntype: Nicaragua. Lectotype here designated: Nicaragua; NHMUK (examined). – Kirby, 1871: 643 (appendix). – Butler, 1877: 118.

Cissia themis; DeVries, 1987: pl. 48, figs. 20-21. – Singer & Ehrlich, 1993: 248. – Lamas, 2004: 218. – Nakahara *et al*., 2012: 359-362, figs 1, 2A-2B, 3-4 (male, female, genitalia, distributional map). – Luis-Martínez *et al*., 2004: 349. – Hernández-Mejía *et al*., 2008: 125. – Luis-Martínez *et al*., 2011: 23. – Miller *et al*., 2012: 58. – Luis-Martínez *et al*., 2016: 216. – Cock, 2014: 11.

Vareuptychia themis; Llorente-Bousquets *et al*., 1995: 45.

Vareuptychia undina; Llorente-Bousquets *et al*., 1995: 45

Cissia undina; Luis-Martínez *et al*., 2004: 349. – Luis-Martínez *et al*., 2011: 23. – Luis-Martínez

et al., 2016: 216.

Yphthimoides maepius [misidentification]; Montero-Abril *et al*., 2009: 165.

Diagnosis. See above under *V. similis*.

Male genitalia (Figs 19-23). Tegumen dorsally flattened, laterally subtriangular; uncus narrow, smaller than tegumen, dorsally with mid-apical region deltoid and apex truncated; gnathos sinuous laterally, half-length of uncus, with apical region hooked-like; combination of ventral arms of tegumen and dorsal arms saccus sinuous; appendix angularis short; anterior projection of saccus developed, cylindrical, and same length as gnathos; fultura inferior present; fultura superior absent; valva rhombic covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa developed and sub-squared, dorsal margin straight, apical projection pointed and longer than the apex of uncus, ventral margin projected at median region; aedeagus slight curved upwards, smaller than valva, anterior region bottle-shaped, posterior region about 1 ½ longer than anterior region, distal margin dorsally truncated, distal opening ventral smaller than proximal opening.

Female genitalia (Figs 26-27). 8th tergite rectangular; papilla analis somewhat oblong, covered by long hairy-like setae at distal region, apophysis posterior absent; lamella antevaginalis half-orbicular in ventral view; lamella postvaginalis absent; ductus bursae membranous; corpus bursae smaller than ductus bursae, with paired signa latero-dorsally.

Variation. The ground colour of the VW is highly intraspecific variable between pale to dark brown, as also observed by Nakahara *et al*. (2012). This is apparently not associated to seasonal polyphenism neither geographical distribution.

Distribution. This species is distributed widely from Mexico to Venezuela (DeVries 1987; Llorente-Bousquets 1995; Luis-Martinez *et al.* 2004; Hernández-Mejía *et al.* 2008; Luis-Martinez *et al*. 2011; Nakahara *et al.* 2012; plus examined material) and Trinidad and Tobago (Barcant 1970; Singer & Ehrlich 1991; Cock 2014), in altitudes below to 1000 m (Fig. 30). *Vareuptychia themis* is sympatric and syntopic with *V. similis* in Jalisco, Malinalco, Oaxaca and Veracruz, Mexico (Llorente-Bousquets 1995; Luis-Martinez *et al*. 2004; Hernández-Mejía *et al.* 2008; Luis-Martinez *et al.* 2011).

Biology and phenology. It has been recorded in deciduous and semi deciduous forests along forest edges, and occasionally in open areas. In Costa Rica, this species is more abundant during the rainy season (Jun-Aug), and become less abundant as the dry season progress (DeVries 1987). Similar to *V. similis*, *V. themis* has been recorded feeding on decaying fruits, such as graviola, sapoti and mango (Hernández-Mejía *et al.* 2008).

Host plants and immature stages. Recorded larval host plants include undetermined species of Poaceae (DeVries 1987; Santini 2004).

Type material, lectotype designation and taxonomic history. Butler (1867a) introduced the name *Euptychia themis* with no description and/or illustration, being an invalid name. In his supplemental material on the "Monography of the genus of *Euptychia*", Butler (1867b) provided a good illustration of *E. themis* (pl. 12, fig. 13), which must be considered the original description of this species, although no locality of this specimen was informed in the figure neither in the text. One male specimen that agrees with the phenotype illustration of *E. themis* (Butler, 1867b, pl. 12, fig. 13) was found at NHMUK. This specimen has not information on its locality, although there is a handwritten indication for Mexico (probably provided later by some NHMUK staff). Also, there is a label indicating that this specimen was comes from the Hewitson's collection, as cited in Butler (1867a). Based on that, this specimen is herein designated as the lectotype of *E. themis* to fix the identity of the name and prevents future misidentification; this specimen has the following labels: /Type ♂ / Hewitson Coll. 79–69. *Euptychia themis* Butl[er]/ *Euptychia themis* Butler/ B. M. Type No. Rh. 3291 *Euptychia themis* Butl[er] ♂/ BMNH(E) 982889/; and two others will be added later: /Lectotypus/ Lectotypus *Euptychia themis* Butler, 1867. T. Zacca det. 2016/. NHMUK. The last two labels will be sent to the curator later.

Butler (1870) named *Euptychia undina* based on only one specimen [holotype] from Nicaragua, which was part of the type series of *E. similis* (see discussion under *V. similis*). Examination of the holotype of *E. undina* at NHMUK confirmed that this specimen is, in fact, a variation of *E. themis*, mainly by the presence of two silvery pupils in the ocellus CuA_1-CuA_2 in VHW.

Examined material. 89 males and 33 females (26 specimens dissected). MEXICO – *Guerrero*: Acapulco de Juárez, Dos Arroyos, 300 m, 1 male, 3 females, IX.[no year], H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420817, BMNH(E) 1420879, BMNH(E)

1420941*, BMNH(E)6 1420663 (NHMUK), Papagaio river, 365 m, 1 female, X.[no year], BMNH(E) 1420848 (NHMUK), General Heliodoro Castillo, La Venta, 90 m, 1 male, 1 female, IX.[no year], H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420910, BMNH(E) 1420972 (NHMUK); *Sierra Madre*: 2 males, no data, Richardson *leg*., BMNH(E) 1420944*, BMNH(E) 1420727* (NHMUK); *Sinaloa*: Culiacan, 1 male, 24.VIII.1956, G. Glückert *leg*. (ZSBS); *Veracruz*: Puente Nacional, 1 female, VII.1939, Dr. Elsenberger *leg*. (ZSBS); *Yucatán*: Piste, 1 male, 4.VIII.1951, Welling *leg*., DZ 27.896 (DZUP), 1 male, 18.IX.1959, DZ 27.894* (DZUP), 3 males, 2.IX.1958, Welling *leg*., B. M. 1959-20, BMNH(E) 1420786*, BMNH(E) 1422047, BMNH(E) 1422017 (NHMUK). GUATEMALA – *no specific locality*: 1 male, [no month].1910, Ex-Grose Smith, 1910, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1420693* (NHMUK), Chichen Itze, 6 males, 1 female, 31.VIII.1955, E. C. Welling *leg*., B. M. 1956-67, BMNH(E) 1422295, BMNH(E) 1422326, BMNH(E) 1422171, BMNH(E) 1422016, BMNH(E) 1422202, BMNH(E) 1422014, BMNH(E) 1422139 (NHMUK); *Baja Verapaz*: San Jerónimo, 1 male, no data, F. D. Godman & O. Salvin, Godman-Salvin Coll. 1904-1, BMNH(E) 1420909* (NHMUK); *Quetzaltenango*: Coatepeque, 395 m, 1 male, Champion *leg*., BMNH(E) 1420874 (NHMUK), Volcano Santa Maria, 2 males, no data, Richardson *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420971*, BMNH(E) 1420940 (NHMUK); *Izabal*: Rio Dulce, 1 female, 13-14.IX.1973, V. O. Becker *leg*., DZ 27.897* (DZUP); *Petén*: Flores, Tikal, 1 male, 19-22.IX.1973, V. O. Becker *leg*., DZ 32.765 (DZUP); *Santa Rosa*: Guazacapán, 6 males, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420657, BMNH(E) 1420688, BMNH(E) 1420719, BMNH(E) 1420750*, BMNH(E) 1420781*, BMNH(E) 1420905 (NHMUK), 2 females, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1420812*, BMNH(E) 1420967 (NHMUK). HONDURAS – *San Pedro Sula*: 2 males, no data, ex-coll. Fruhstorfer, Godman-Salvin Coll. 1904-1, BMNH(E) 1420662, BMNH(E) 1420724* (NHMUK). EL SALVADOR – *San Salvador*: 1 male, 31.VII.1960, Miguel Serrano *leg*., DZ 27.895 (DZUP). NICARAGUA – *Matagalpa*: 1 male, 9.VII.1957, no collector (ZSBS), 1 male, 1 female, no data, Richardson *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420755, BMNH(E) 1420694 (NHMUK); *San Juan del Sur*: Nica Dev Reserve, 1 male, 1.V.??, J. M. Maes *leg*., DZ 32.755 (DZUP), 1 male, 2 females, 26.IX.??, DZ 32.725, DZ 32.735, DZ 32.666 (DZUP), 2 females, 28.IX.??, DZ 32.796, DZ 32.745 (DZUP). COSTA RICA – *no specific locality*: 1 male, no data, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1420725* (NHMUK), 1 male, 1 female, no data, Ex-Grose Smith, 1910, BMNH(E) 1420756, BMNH(E) 1421808 (NHMUK); *Rio Grande de Tárcoles*: 1 male, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420936 (NHMUK); *Alajuela*: San Mateo, 1 male, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420843 (NHMUK); *San José*: Escazú, 2 females, X.1902, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420658, BMNH(E) 1420689* (NHMUK). PANAMA – *no specific locality*, 4 males, no data, Crowley Bequest, 1901-78, BMNH(E) 1420875*, BMNH(E) 1420937, BMNH(E) 1420846*, BMNH(E) 1420787 (NHMUK), 6 males, 3 females, P. Lathy

leg., Rothschild Bequest B. M. 1939-1, BMNH(E) 1422046, BMNH(E) 1421952, BMNH(E) 1422077, BMNH(E) 1421983, BMNH(E) 1422108, BMNH(E) 1422078, BMNH(E) 1422333, BMNH(E) 1422109, BMNH(E) 1422264 (NHMUK); *Chiriqui:* David, 1 male, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420877 (NHMUK); *Gamboa*: old Gamboa road, 1 male, 29.IX.2001, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421890 (NHMUK); *Pearls Islands*: Isla del Rey, 1 male, 26.VI.1924, St. George Expedition, C. L. Collenette *leg*., Brit. Mus. 1925-576, BMNH(E) 1420816 (NHMUK); *Sabanas*: Canal Zone, 1 male, 16.VI.1924, St. George Expedition, C. L. Collenette *leg*., Brit. Mus. 1925-576, BMNH(E) 1420878 (NHMUK); *Pedro Miguel*: 1 male, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421921 (NHMUK). COLOMBIA – *no specific locality*: 1 male, no data, Wheeler *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420659* (NHMUK); *Bogotá*: 1 female, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1422086 (NHMUK), Rio Magdalena, 360 m, 1 female, 6.I.[19]57, no collector (ZSBS); *César:* Chiriguaná, Lake Sapatoza, 5 males, 1 female, no data, C. Allen *leg*., Brist. Mus. 1952-576, BMNH(E) 1420907*, BMNH(E) 1420938, BMNH(E) 1420969, BMNH(E) 1420908*, BMNH(E) 1421777 (NHMUK), 1 male, 3 females, VIII-IX.1924, BMNH(E) 1422048, BMNH(E) 1422079, BMNH(E) 1422110, BMNH(E) 1422141 (NHMUK). VENEZUELA – *no specific locality:* 1 male, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420906 (NHMUK), 1 male, ex-coll. Staudinger, Godman-Salvin Coll. 1904-1, BMNH(E) 1420660 (NHMUK), 1 male, Druce Coll., ex-coll. Kadea, Godman-Salvin Coll. 1904-1, BMNH(E) 1420691 (NHMUK); *Barinas*: Barinitas, 500 m, 1 male, 12.VI.1971, H. Huber *leg*. (ZSBS); *Bolívar*: 3 males, 27.X.1898, S. Klages *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420782, BMNH(E) 1422148, BMNH(E) 1422056 (NHMUK), 1 male, 20.XII.1898, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420844 (NHMUK), Caicara del Orinoco, 1 male, 2 females, III.1897, Cherrie *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420720*, BMNH(E) 1420752, BMNH(E) 1420814* (NHMUK), 1 female, IV.1898, BMNH(E) 1420783 (NHMUK); *Carabrobo*: Valencia, 1 male, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420751 (NHMUK), 1 female, no data, Goering *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420690 (NHMUK); *Caracas*: 2 males, no data, Maj. A. Pam., B. M. 1925-30, BMNH(E) 1422172, BMNH(E) 1422203 (NHMUK); *Maracay*: 1 male, no data, P. Vogl *leg*. (ZSBS); *Sucre:* Carúpano, 1 male, XII.1891. C. W. Ellacombe *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420721 (NHMUK), Guiria, Cerro Patao, 1 male, VIII.1981, Rothschild Bequest B. M. 1939-1, BMNH(E) 1422117 (NHMUK). TRINIDAD AND TOBAGO – *no specific locality*: 2 males, 3 females, no data, W. G. Sheldon Bequest B. M. 1944-37, BMNH(E) 1420845, BMNH(E) 1420876, BMNH(E) 1420722, BMNH(E) 1420939*, BMNH(E) 1420785* (NHMUK), 4 males, II.19032, A. Hall *leg*., Brit. Mus. 1933-94, BMNH(E) 1420753, BMNH(E) 1420692, BMNH(E) 1420723, BMNH(E) 1420754 (NHMUK), 3 males, Druce Coll., Godman-Salvin Coll. 1904-1, BMNH(E) 1420784, BMNH(E) 1420970*, BMNH(E) 1420661 (NHMUK),

1 male, ex-Grose Smith, 1910, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1420815 (NHMUK); *Port of Spain*: Maraval, 1 male, I.1892, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420813 (NHMUK); *Plymouth*: Bethany, Travellers Palm, 2 females, 28.XII.2006, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1422015, BMNH(E) 1422140 (NHMUK); *Saint George*: 1 male, no data, C. W. Ellacombe *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420847* (NHMUK).

***Genus D* Zacca, Casagrande & Mielke gen. n.**

Type species. *Euptychia labe* Butler, 1870.

Diagnosis and description. Similar to species of *Cissia*, the species of *Genus D* have (1) glabrous eyes, (2) DHW with developed bipupilated ocellus in CuA_1-CuA_2, (3) VFW with yellowish patch between median and submarginal lines (except in *Genus D lesbia*), (4) VHW with two developed ocelli, one in M_1-M_2 and other of similar size in CuA_1-CuA_2, and (5) aedeagus with bifid apex and cornuti absent (except in *Genus D labe*) (Fig. 52). However, species of *Genus D* can be distinguished to species of *Cissia* by the (1) FW discal cell half-length of the wing, (2) VHW with a reddish-brown sub-squared patch at tornus (Fig. 32) formed by the expansion of marginal line (marginal line of same width on its entire length in *Cissia*), (3) VHW with rounded complete ocelli in M_2-M_3 and M_3-CuA_1 (except in *Genus D lesbia* that are incomplete) (elongated incomplete ocelli in M_2-M_3 and M_3-CuA_1 in *Cissia*), (4) VHW with a tiny ocellus between 2A and anal margin (absent in *Cissia*) (Fig. 36), (5) Median region of anterior margin of tegumen strongly concave (convex or slight concave in *Cissia*) (Fig. 49), (6) Gnathos elongated and curved upwards (short and hooked-like in *Cissia*) (Fig. 49), (7) Uncus ovoid with apex truncated or pointed in dorsal view (elliptical in *Cissia*) (Fig. 49), (8) Lamella antevaginalis and postvaginallis absent (lamella antevaginalis developed in *Cissia*), and (9) Papilla analis without apophysis posterior (apophysis posterior developed in *Cissia*) (Fig. 64).

Discussion. *Genus D* comprises three species, all previously treated in *Cissia* by Lamas (2004): *Genus D labe*, *Genus D lesbia* and *Genus D palladia*. Molecular phylogenies have failed to sample these species (Murray & Prowell 2005; Peña *et al.* 2006, 2010; Wahlberg *et al.* 2009), but an ongoing molecular study (M. Espeland *et al.*, *in prep.*) has pointed *Genus D labe* as sister to *Cissia* (as redefined in Chapter 3). On the other hand,

the same study has suggested that *Genus D lesbia* is closely related to a clade composed by *Cyllopsis rogersi* (Godman & Salvin, 1878) and *Yphthimoides celmis* (Godart, [1824]), while *Genus D palladia* belongs to a clade composed by *Yphthimoides pacta* (Weymer, 1911) and *Carminda paeon* (Godart, [1824]), but several morphological features disprove these relationships (see comparison below, under *Genus D lesbia* and *Genus D palladia*). Similarities in wing pattern and genitalia (see above in Diagnosis section) strongly suggest the inclusion of these species in *Genus D.*

Checklist of *Genus D*

Genus D Zacca, Casagrande & Mielke **gen. n.**

Genus D labe (Butler, 1870) **comb. n.**

Genus D lesbia (Staudinger, [1886]) **comb. n.**

Genus D palladia (Butler, 1867) **comb. n.**

***Genus D labe* (Butler, 1870) comb. n.** (Figs 31-34, 43-44, 49-53, 64-65, 70-71)

Euptychia labe Butler, 1870: 250, pl. 1, fig. 2; syntypes: [Panama], Calobre and Santa Fé, [Guatemala], Polochic Valley. – Kirby, 1871: 642. – Distant, 1876: 12. – Butler, 1877: 117. – Godman & Salvin, 1880: 121. – Godman, 1901a *in* Godman & Salvin: 79, pl. 8, fig. 3. – Godman, 1901b *in* Godman & Salvin: 652. – Weymer, 1911: 200. – Riley & Gabriel, 1924: 30. – Gaede, 1931: 452. – D'Abrera: 761 (male).

Argyreuptychia labe; Forster, 1964: 123, fig. 142 (male genitalia).

Euptychia drymo Schaus; Wesley & Emmel, 1975: fig. 126 [misidentification].

Cissia labe; Singer *et al*., 1983: 106; lectotype female designated: [Panama], Santa Fé; NHMUK (examined). – Llorente-Bousquets, 1986: 24. – DeVries, 1987: 273, pl. 48, fig. 27 (female). – Ackery, 1988: 114. – Raguso & Llorente-Bousquets, 1990: 132. – Ehrlich *et al*., 1994: 23. – Luis-Martínez *et al*., 1995: 119. – Racheli & Racheli, 1998: 111. – Pozo *et al*., 2003: 516. – Lamas, 2004: 218. – Luis-Martínez *et al*., 2004: 349. – Shuey *et al*., 2005: 88. – Beccaloni *et al*., 2008: 328. – Luis-Martínez *et al.*, 2011: 23. – Miller *et al*., 2012: 58. – Garwood & Jaramillo, 2016b: 102, figs 1150-1154 (male, female). – Garwood *et al*., 2016: 193, figs 2251-2255 (male, female). – Luis-Martínez *et al*., 2016: 216.

Diagnosis. *Genus D labe* closely resembles to *Genus D palladia*, but it can be distinguished by elliptical ocellus in CuA_1-CuA_2 in DHW (rounded in *Genus D palladia*)

and doubled submarginal line in VFW (Fig. 32). Although molecular phylogeny (M. Espeland *et al., in prep.*) has suggested *Genus D labe* related to *Cyllopsis rogersi* and *Yphthimoides celmis*, here are cited the morphological differences between these taxa. *Genus D labe* differs to *C. rogersi* (see illustrations in Miller 1974: 14, figs 20-22) by (1) ocellus in CuA_1-CuA_2 in DHW (absent in *C. rogersi*), (2) submedian and median lines straight in VW (wavy in *C. rogersi*), (3) marginal line broad at tornus (narrow on its entire length in *C. rogersi*), (4) five ocelli in VHW (only three ocelli in *C. rogersi*), (5) wings without androconial patches (present in *C. rogersi*), (6) uncus curved downwards (straight in *Cyllopsis*), (7) gnathos elongated and curved upwards (short and hooked-like in *Cyllopis*), (8) combination of ventral arms of tegumen and dorsal arms of saccus straight (strongly sinuous in *Cyllopis*) and (9) valva broader at the median region (narrow in *C. rogersi*). Compared to *Y. celmis* (see illustrations in Forster 1964: 100, fig. 90), *Genus D labe* is mainly distinguished by (1) developed ocellus in CuA_1-CuA_2 in DHW (reduced in *Y. celmis*), (2) HW outer margin crenulated (rounded in *Y. celmis*), (3) FW and DW ventral lines very wide (narrow in *Y. celmis*), (4) VHW with ocelli in M_2-M_3 and M_3-CuA_1 (absent in *Y. celmis*), (5) gnathos longer, 2/3 length of uncus (short with half-length of uncus in *Y. celmis*), and (6) elongated valva with apex slightly serrated (broad valva with apex strongly serrated in *Y. celmis*).

Male genitalia (Figs 49-53). Tegumen dorsally convex, anterior margin with median region strongly concave, laterally subtriangular; uncus slightly arched downwards, basally wide, about two times the length of tegumen, dorsally ovoid, apex truncated in dorsal view; gnathos slightly sinuous and curved upwards, 2/3 length of uncus, wide at base and tapering at apex; combination of ventral arms of tegumen and dorsal arms of saccus straight; appendix angularis short; anterior projection of saccus short, smaller than gnathos; fultura superior absent; fultura inferior present; valva elongated and trapezoid, covered by long hairy-like setae latero-ventrally and short ones at inner side, costa developed and sub-squared, dorsal margin straight with dorsal projection at the apical third, ventral margin slightly projected at the median region, apex pointed and serrated; aedeagus straight, shorter than valva, anterior region rounded, posterior region as longer as anterior region, apex bifid, distal opening ventral and smaller than proximal opening; cornuti present.

Female genitalia (Figs 64-65). 8^{th} tergite rectangular; papilla analis somewhat oblong, covered by long hairy-like setae at distal region, apophysis posterior absent; lamella

antevaginalis and postvaginalis absent; ductus bursae membranous; corpus bursae about same length as ductus bursae, with paired signa dorsally.

Variation. Two specimens from Guatemala, one from Zapote (voucher number BMNH(E) 1420892) and other from Sinanja (BMNH(E) 1420768), stands out by the faded ocellus in DHW and sinuous median line between M_1-CuA_1 in VHW. Considering there are no differences on the wing pattern elements and genitalia, they are here treated as intraspecific variation of *Genus D labe* rather than a distinct species. Females of *Genus D labe* are easily to distinct from males by FW apex rounded and developed subapical ocellus in M_1-M_2 in DFW.

Distribution. This species is distributed widely from Mexico to Colombia and Ecuador (Singer *et al*. 1983; DeVries 1987; plus examined material) in altitudes below 1600 m (Fig. 71).

Biology and phenology. This species is multivoltine, flying during all year around. In Costa Rica, this species has been reported as more abundant during the dry season (DeVries 1987). It is found in primary and secondary forest, usually along riparian edges or in large light gaps in rainforest (Singer *et al.* 1983; DeVries 1987; Ehrlich *et al*. 1994; Garwood *et al*. 2016), but also in association with disturbed areas (Singer *et al*. 1983). Feed on rotting fruits and decomposing fungi (DeVries 1987).

Host plants and immature stages. Recorded larval host plants includes undetermined species of *Paspalum* L. and *Ichananthus* Beauv. (Poaceae) (DeVries 1987; Ackery 1988; Beccaloni *et al.* 2008).

Type material, lectotype designation and taxonomic history. *Euptychia labe* Butler, 1870 was described based on three specimens from Godman & Salvin collection, two collected by Arcé in Calobre and Santa Fé (Veraguas, Panamá) and other by Hague in the Polochic Valley (Guatemala). In their "Catalogue of the type specimens of Lepidoptera Rhopalocera in Britsh Museum", Riley & Gabriel (1924) designated a female specimen from Chiriqui, Panamá, as lectotype of *E. labe*. However, Singer *et al*. (1983) correctly rejected this lectotype because that specimen was not one of those syntypes of *E. labe*, and then designated the syntype from Santa Fé as lectotype of *E. labe.* Although the lack of abdomen in this lectotype (Fig. 44), there is no doubt it is a female specimen based on the well-developed subapical ocellus in DFW, and not a male as suggested by Singer *et*

al. (1983).

Examined material. 27 males and 38 females (13 specimens dissected). MEXICO – *Veracruz*: Atoyac, 1 male, IV.[no year], H. H. Smith *leg*., Godman-Salvin, 1904-1, BMNH(E) 1420703* (NHMUK), Cuesta de Misantla, 1 female, no data, M. de Trujillo *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420954* (NHMUK), Córdoba, 1 male, no data, Runeli *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420982 (NHMUK). GUATEMALA – *Alta Verapaz*, Cahabón, 5 males, 2 females, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420735, BMNH(E) 1420673, BMNH(E) 1420952, BMNH(E) 1420797, BMNH(E) 1420766*, BMNH(E) 1420827, BMNH(E) 1420736* (NHMUK), Sinanjá, 1 male, 1 female, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420768, BMNH(E) 1420704 (NHMUK), Telemán, 1 female, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420858 (NHMUK); *Baja Verapaz*: San Jerónimo, 1 female, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420734 (NHMUK); *Escuintla*: Finca El Zapote, 1 male, 1 female, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420892, BMNH(E) 1420674 (NHMUK); *Izabal*: Polochic Valley, 2 females, no data, F. D. Godman & O. Salvin *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420983, BMNH(E) 1420890 (NHMUK). NICARAGUA – *no specific locality*: 1 male, no data, no collector, Hewitson Coll. 79-69, BMNH(E) 1420922* (NHMUK), 1 male, no data, no collector, Ex-Grose Smith, 1910, BMNH(E) 1420705 (NHMUK). COSTA RICA – *no specific locality*: 2 females, no data, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420826, BMNH(E) 1420857 (NHMUK), 11 females, no data, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420888, BMNH(E) 1420671, BMNH(E) 1420702, BMNH(E) 1420919*, BMNH(E) 1420950, BMNH(E) 1420733, BMNH(E) 1420981, BMNH(E) 1420764, BMNH(E) 1420765, BMNH(E) 1420951, BMNH(E) 1420672 (NHMUK), 1 female, no data, A. G. M. Gillott *leg*., B. M. 1929-353, BMNH(E) 1420921 (NHMUK); *Cartago*: Cachí, 2 males, 3 females, no data, H. Rogers *leg*., Shell. Coll., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420701, BMNH(E) 1420889*, BMNH(E) 1420796*, BMNH(E) 1420859, BMNH(E) 1420828 (NHMUK); Juan Viñas, 1 male, VIII.[no year], Rothschild Bequest B. M. 1939-1, BMNH(E) 1420732 (NHMUK); *La Fortuna de San Carlos*: 9 km W, Montana de Fuego Inn, 1 female, 3.I.2005, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421828 (NHMUK); *San José*: Poás Volcan, 1 female, no data, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420795 (NHMUK). PANAMA – *Chiriqui*: 1 female, no data, no collector (ZMHU), Valle de Chiriqui, 1 male, 1 female, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420706, BMNH(E) 1420830 (NHMUK), 1 female, no data, Ribbe *leg*., Ex Staudinger, Godman-Salvin Coll. 1904-1, BMNH(E) 1420737 (NHMUK); *Campana*: Cerro Campana, 900 m, 1 male, 15.IX.2001, M. Majerus *leg*., Majerus Coll. 6BMNH(E) 2009-52, BMNH(E) 1422325 (NHMUK), Tocumen, 1 female, 25.VI.1947, R. E. Ellison *leg*., Brit. Mus.

1948-295, BMNH(E) 1421859 (NHMUK). COLOMBIA – *Antioquia*: Valdivia, 1 male, [no month].1897, no collector, Ex-Grose Smith, 1910, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1420798* (NHMUK), San Pablo, Rio San Juan, 2 females, Trotsch *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420675, BMNH(E) 1420985* (NHMUK), 2 males, 1 female, no data, no collector (ZMHU). ECUADOR – *no specific locality*: 1 female, no data, no collector, Hewitson Coll. 79-69, BMNH(E) 1420891 (NHMUK); *Bolívar*: Chimbo, 1000 m, 4 males, VIII.1897, Rosenberg *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420763, BMNH(E) 1420887, BMNH(E) 1420918, BMNH(E) 1420980 (NHMUK), 1 female, 1° semester 1892, M. de Mathan *leg*., Ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1420953 (NHMUK), La Chima, 1 male, 1 female, 1° semester 1893, M. de Mathan *leg*., Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1420829, BMNH(E) 1420860* (NHMUK), Los Ríos, 1 male, 1° semester 1893, M. de Mathan *leg*., Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1420767 (NHMUK), Río de las Juntas, pr. Babahoyo, Los Rios, 1 male, VI-VII.1893, M. de Mathan *leg*., Ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1420984* (NHMUK); *Imbabura*: Paramba, 1066 m, 4 males, IV.1897, Rosenberg *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420794*, BMNH(E) 1420825, BMNH(E) 1420856, BMNH(E) 1420949 (NHMUK); *Pichincha*: Alluriguin, Tinalândia, 1000 m, 1 male, 18.VII.1981, Mielke & Casagrande *leg*., DZ 28.384* (DZUP).

Genus D lesbia (Staudinger, [1886]) (Figs 35-38, 45, 54-58, 66-67, 70, 72)

Euptychia lesbia Staudinger, [1886]: 226, pl. 80; syntypes: [Brazil, Amazonas], Massauari, Fonteboa and Tefé. Lectotype female here designated: [Brazil, Amazonas], Massauari; ZMHU (examined). – Weymer, 1911: 215. – Gaede, 1931: 452. – Zimsen, 1964: 513. – D'Abrera, 1988: 763 (male, female).

Argyreuptychia lesbia; Forster, 1964: 123.

Cissia lesbia; Lamas, 2004: 218. – Brévignon, 2008: 72, 84, figs 34a-34c (male, genitalia). – Brévignon & Benmesbah, 2012: 52. – Casagrande *et al*., 2012: 25.

Diagnosis. This species is easily distinguished from its congeners by the wide yellowish-ochre patch on VHW in submarginal region between M_3 and anal margin (Figs 36, 38).

Male genitalia (Figs 54-58). Tegumen dorsally convex, anterior margin with median region strongly concave, laterally subtriangular; uncus slightly arched downwards, basally wide, about twice longer than tegumen, dorsally ovoid, apex truncated in dorsal view; gnathos slightly sinuous and curved upwards, 2/3 the length of uncus, wide at base

and tapering at apex; combination of ventral arms of tegumen and dorsal arms of saccus straight; appendix angularis developed; anterior projection of saccus developed, smaller than gnathos; fultura superior absent; fultura inferior present; valva elongated and trapezoid, covered by long hairy-like setae latero-ventrally and short ones at inner side, costa developed and sub-squared, dorsal margin sinuous with dorsal projection slightly developed at the apical third, ventral margin slightly projected at median region, apex pointed and serrated; aedeagus straight, shorter than valva, anterior region bottle-shaped, posterior region longer than anterior region, apex bifid, distal opening ventral and smaller than the proximal opening; cornuti absent.

Female genitalia (Figs 66-67). 8th tergite rectangular; papilla analis somewhat oblong, covered by long hairy-like setae at distal region, apophysis posterior absent; lamella antevaginalis and postvaginalis absent; ductus bursae membranous; corpus bursae half-length ductus bursae, with paired signa dorso-laterally.

Variation. The ocellus between 2A and anal margin in VHW can varies in size, but is always present.

Distribution. This species occurs in Amazonian forest along the rivers Solimões and Tapajós (Fig. 72).

Biology and phenology. Flies from May to October during late morning to mid-afternoon (Brévignon 2008; plus examined material).

Host plants and immature stages. Unknown.

Type material, lectotype designation and taxonomic history. *Euptychia lesbia* Staudinger, [1886] was described based on an unstated number of females collected by Dr. Paul Hahnel in Massauari, Fonteboa and Tefé, Amazonas, Brazil. Three female syntypes of *E. lesbia* were found at ZMHU from the same localities above mentioned. Although L. D Miller had added labels indicating them as lectotypes and paralectotypes of *E. lesbia* in 1988, it was never published. The female syntype from Massauari is herein designated as the lectotype of *Euptychia lesbia* to fix the identity of the name (Fig. 45); this specimen has the following labels: /Origin/ abgebildet/ Massauary Hhl. [Hahnel]/ ex collect[ion] Staudinger/ *Eu[ptychia] lesbia* Stgr [Staudinger]/ Eigentum Mus[eum] Berlin/ genitalia vial M- 9060 ♀ Lee D. Miller/; and two other labels: /Lectotypus/ Lectotypus *Euptychia lesbia* Staudinger, [1886]. T. Zacca, 2016/ ZMHU. The last two

labels will be sent to the curator later. The other two syntypes are here designated as paralectotypes and will be accordly labelled.

Remarks. Weymer (1911) treated *E. lesbia* in the "*Batesi* group" together with *E. batesii* Butler, 1867, *E. analis* Godman, 1905, *E. thalessa* Möschler, 1877, *E. juani* Staudinger, 1887, *E. tricolor* Hewitson, 1850, *E. fulgora* Butler, 1869, *E. nortia* Hewitson, 1862 and *E. segesta* Weymer, 1911, species currently placed in *Magneuptychia* Forster, 1964 and *Splendeuptychia* Forster, 1964. Forster (1964) transferred this species to *Argyreuptychia* Forster, 1964, posteriorly synonymized with *Cissia* (see Chapter 3).

The submarginal yellowish-patch on VFW is not good predictor of relationship among species of *Genus D*, due its absent in *Genus D lesbia*. Moreover, this feature have appeared independently in several euptychines lineages (e.g. *Inbio hilara*, *Cissia penelope*, *Genus F myncea* **comb. n.**), probably as a mechanism of ecological convergence.

Examined material. 5 males and 6 females (2 specimens dissected). BRAZIL – *Amazonas*: Manaus, 1 male, [no month].1886, Hahnel *leg*. (ZMHU), Reserve Ducke, 2°53'S 59°57'W, 1 male, 10-13.VIII.2010, Dias & Bonfantti *leg*., DZ 29.364 (DZUP), 47 km NW, Reserve ZF2, 2°35'S 60°12'W, 3 females, 17-20.VIII.2010, DZ 29.366, DZ 29.365, DZ 29.367 (DZUP), Nhamundá, Rio Nhamundá, Igarapé Areia, 1°35'11"S 57°37'34"W, 1 female, 15-16.V.2008, Mielke & Casagrande *leg*., DZ 28.093 (DZUP); *Pará*: Cuminá, Rio Cuminá, Cachoeira do Tronco,1 male, 29.VIII.1936, ex-coll. D'Almeida, DZ 28.092* (DZUP), 1 female, 29.IX.1936, DZ 28.091* (DZUP), Tapajós, 1 male, 20.IX.2013, no collector, MGCL-LOAN-316 (ZUEC), 1 male, 15.X.2013, no collector, MGCL-LOAN-317 (ZUEC).

***Genus D palladia* (Butler, 1867)** (Figs 39-42, 46, 47-48, 59-63, 68-69, 70, 73)

Euptychia palladia Butler, 1867: 461, pl. 39, fig. 21; syntypes: [Brazil, Pará], Tapajós. – Butler, 1868: 16. – Kirby, 1871: 48. – Butler, 1877: 118. – Weymer, 1911: 200, pl. 47b. – Kaye, 1921: no. 114. – Riley & Gabriel, 1924: 42. – Aurivillius, 1929: 158. – Gaede, 1931: 459. – Bryk, 1953: 60. – Barcant, 1970 [misidentification]: 143, 161, pl. 13, fig. 9 (male).

Argyreuptychia palladia; Forster, 1964: 123. – Lewis, 1973: pl.58, fig. 17.

Cissia palladia; Singer *et al*., 1983: 109, figs 2E, 3E, 4E; lectotype female: [Brazil, Pará], Tapajós; NHMUK (examined). – DeVries, 1987: 274, pl. 48, fig. 28 (male). – Singer & Ehrlich, 1993: 250. – Lamas, 1994: 165. – Ramos, 2000: 40. – Lamas, 2004: 218. – Beccaloni *et al*., 2008: 329. – Brévignon & Benmesbah, 2012: 40, pl. 4, fig. 5a (male genitalia). – Montero-Abril & Ortiz-Perez, 2013: 58. – Cock, 2014: 11.

Euptychia pallidia [sic]; D'Abrera, 1988: 761 (male, female).

Diagnosis. This species differs from its congeners by the smaller size (FW length: 16-18 mm), VFW with two developed faded ocelli in M_2-M_3 and M_3-CuA_1 and marginal line straight. Although molecular phylogeny (M. Espeland *et al., in prep.*) has suggested *Genus D palladia* as related to *Yphthimoides pacta* and *Carminda paeon*, here are cited the main morphological differences between these taxa. *Genus D palladia* differs to *Y. pacta* by the glabrous eyes (hairy in *Y. pacta*), three mono-pupiled ocelli in VFW (four or five ocelli in *Y. pacta*), five bipupiled ocelli from Rs to CuA_2 in VHW (six mono-pupiled ocelli from Rs to 2A in *Y. pacta*), valva elongated and narrow at the median region (trapezoid and broad at median region in *Y. pacta*) with costae short (well-developed in *Y. pacta*) and apex slightly serrated (with developed spiny projections in *Y. pacta*). Additionally, molecular phylogeny of *Yphthimoides* (Barbosa *et al., in prep.*) found a well-supported clade (Bremer support = 100; posterior probability = 1) composed by *Y. pacta* and *Y. patricia* (Hayward, 1957). Compared to *C. paeon* (see illustrations in Ebert & Dias 1997), *Genus D palladia* has glabrous eyes (hairy in *C. peon*), no marbled ground colour in VHW, five ocelli from Rs to CuA_2 (no ocelli from M_2-CuA_1 in *C. paeon*), short apex of uncus in dorsal view (long in *C. paeon*) and bifid apex of aedeagus (truncated in *C. paeon*).

Male genitalia (Figs 59-63). Tegumen dorsally convex, anterior margin with median region concave, laterally subtriangular with anterior region projected; uncus slightly arched downwards, basally wide, about 2 ½ length of tegumen, dorsally ovoid, apex truncated in dorsal view; gnathos slightly sinuous and curved upwards, 2/3 the length of uncus, wide at base and tapering at apex; combination of ventral arms of tegumen and dorsal arms of saccus slight sinuous; appendix angularis short; anterior projection of saccus developed, smaller than gnathos and curved upwards; fultura superior absent; fultura inferior present; valva elongated and trapezoid, covered by long hairy-like setae latero-ventrally and short ones at inner side, costa developed and sub-squared, dorsal margin straight with no dorsal projection, ventral margin slightly projected at median region, apex pointed and serrated; aedeagus straight, shorter than valva, anterior region elliptical, posterior region longer than anterior region, apex bifid, distal opening ventral and as longer as proximal opening; cornuti absent.

Female genitalia (Figs 68-69). 8th tergite rectangular; papilla analis somewhat oblong, covered by long hairy-like setae at distal region, apophysis posterior absent; lamella antevaginalis and postvaginalis absent; ductus bursae membranous; corpus bursae longer than ductus bursae, with paired signa latero-ventrally.

Variation. Females have rounded FW (triangular in males), developed subapical ocellus in M_1-M_2 in DFW (absent in males), and VFW with median and submarginal lines farther away to each other than they are in males. In both sexes, the ocelli in M_2-M_3 and M_3-CuA_1 in VFW can be faded in some individuals, but always present.

Distribution. This species is distributed widely from Nicaragua to Brazil (Acre, Amazonas, Roraima, Maranhão, Pernambuco e Mato Grosso) and Trinidad and Tobago (Singer *et al.* 1983; DeVries, 1987; Singer & Ehrlich 1993), in altitudes below 800 m (Fig. 73). According to DeVries (1987), *Genus D palladia* is rare in Costa Rica, known only from remnant forests near Atenas. In French Guiana it is only known from Mitakara Mountains (Brévignon & Benmesbah, 2012).

Biology and phenology. Flies throughout all year around. Similar to *Genus D labe,* the peak of abundance of *Genus D palladia* is during the dry season in Trinidad (Singer *et al.* 1983). Occurs very locally in association with deciduous and premontane forests, along riparian edges (Singer *et al.* 1983; DeVries, 1987).

Host plants and immature. Recorded larval host plants includes undetermined species of *Cyperus* L. and *Seleria* (Cyperaceae), *Ichnanthus pallens* (Sw.), *Lasiacis sloanei* (Griseb.), *Oplismenus hirtellus* (L.), *Panicum pilosum* Sw., *P. polygonatum* Schrad., *Paspalum conjugatum* P. J. Bergius, *Pasp. convexum* Willd. ex Döll, *Pasp. decumbens* Sw., *Setaria paniculifera* (Steud.) E. Fourn. (= *S. palmifolia* (J. Koenig) Stapf) and *Tripsacum* sp. (Poaceae) (Singer *et al*. 1983; DeVries 1987; Ackery 1988; Beccaloni *et al.* 2008).

Type material, lectotype designation and taxonomic history. *Euptychia palladia* Butler, 1867 was described based on an unstated number of specimens collected by H. W. Bates in Tapajós, Pará, Brazil. The female lectotype of *E. palladia* (Fig. 46) was designated by Singer *et al.* (1983) and it is deposited at NHMUK.

Remarks. The specimen cited and illustrated as *E. palladia* in Weymer (1911: 200, pl. 47b) correspond to *Genus F myncea* **comb. n.** (see discussion below), as also pointed by

Singer & Ehrlich (1993). Weymer described his specimen by having five ocelli on VHW, which disagree with the original description of *E. palladia*, composed by six ocelli on VHW, and a reduced ocellus in 2A-3A (Butler, 1867: 462). Barcant (1970) also misidentified *Genus F myncea* **comb. n.** as *E. palladia*. Brown *et al*. (2007) cited *Cissia* sp. nr. *palladia* from Quibdo, Chocó, Colombia, but was not possible to examined this specimen.

Examined material. 11 males and 19 females (6 specimens dissected). PANAMA – *no specific locality*: 1 male, no data, P. Lathy *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420979* (NHMUK), 1 male, XI.1907, Pemberton *leg*., BMNH(E) 1420978 (NHMUK); *Chiriqui*: 1 male, no data, Ribbe *leg*., Ex Staudinger, Godman-Salvin Coll. 1904-1, BMNH(E) 834508 (NHMUK), 3 females, no data, Ribbe *leg*., (ZMHU), Bugaba, 240-450 m, 1 female, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 834509 (NHMUK), The Fortuna Forest Reserve, Canal Zone, 1 female, 2.II.1947, R. E. Ellison *leg*., Brit. Mus. 1948-295, BMNH(E) 1421826 (NHMUK); *Gamboa*: old Gamboa road, 1 female, 25.IX.2001, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1422012 (NHMUK); *Veraguas*: 2 males, no data, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420700, BMNH(E) 1420948* (NHMUK). TRINIDAD AND TOBAGO – *no specific locality*: 1 female, no data, no collector, F. W. Jackson 1913-208, BMNH(E) 834510 (NHMUK); *Port of Spain*: Caparo Valley, 1 female, XII.1896, Dr. Rendall *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420886* (NHMUK). BRAZIL – *Acre*: Mâncio Lima, Parque Nacional Serra do Divisor (sede), Moa river, 7°26'52"S 73°39'55", 4 females, 20-27.VI.2013, Mielke, Casagrande, Carneiro, Dias & Dolibaina *leg*., DZ 29.547, DZ 29.544, DZ 29.548, DZ 29.549 (DZUP), 1 male, 1 female, 23-30.VIII.2014, Mielke, Casagrande, Carneiro, Dias, Dolibaina, Siewert & Salik *leg*., DZ 38.061, DZ 38.062 (DZUP); *Roraima*: Amajari, Tepequén, 620 m, 1 female, 14-16.VII.2009, Mielke & Casagrande *leg*., DZ 29.491 (DZUP); *Maranhão*: Imperatriz, 1 male, 3.VII.1974, Ex. Depto Zoologia, DZ 28.097* (DZUP), 1 female, 4.VII.1974, DZ 28.098* (DZUP); *Pernambuco*: Escada, 150 m, 1 female, 30.IX.1961, H. Ebert *leg*., DZ 28.096 (DZUP), Ipojuca, 100 m, 1 female, 11.IX.1958, H. Ebert *leg*., DZ 28.095 (DZUP), 1 male, 23.IX.1961, DZ 28.094 (DZUP); *Mato Grosso*: Barra do Garças, km 11, Torixoreu, 1 male, 21.IV.1978, Gifford *leg*., DZ 28.100 (DZUP), Chapada dos Guimarães, Buriti, 700 m, 1 female, 30.I.1978, ex-coll. H. Ebert, DZ 28.099* (DZUP), 2 males, 1 female, no data, H. H. Smith *leg*., Godman-Salvin, 1904-1, BMNH(E) 834511, BMNH(E) 834512, BMNH(E) 834513 (NHMUK).

***Genus E* Zacca, Casagrande & Mielke gen. n.**

Type species. *Cissia pseudoconfusa* Singer, DeVries & Ehrlich, 1983

Diagnosis and description. *Genus E* can be distinguished from *Cissia* by the following characters: (1) hairy eyes (glabrous in *Cissia*), (2) m-cu strongly dilated (slightly dilated in *Cissia*) (Figs 80-81); (3) uncus sinuous and strongly dilated at the median region in dorsal view (arched downwards, smoothly dilated or straight at the median region in *Cissia*); (4) gnathos developed and slightly sinuous (Fig. 83) (short and hooked-like in *Cissia*); (5) valva with short apex (Fig. 83)(elongated apex in *Cissia*); (6) aedeagus with apex truncated (bifid in *Cissia*); (7) cornuti present (absent in *Cissia*) (Fig. 86). Compared to *Paryphthimoides*, *Genus E* can be distinguished by (1) densely hairy eyes (sparsely in *Paryphthimoides*); (2) VFW with a developed bipupilated ocellus in R_{4+5}-M_1 (small ocellus in *Paryphthimoides*) and yellowish-ochre patch in submarginal region (absent in *Paryphthimoides*); (3) dci concave or sinuous (straight in *Paryphthimoides*) (Fig. 80-81); (4) gnathos slight sinuous and not curved upwards (strongly sinuous and curved upwards in *Paryphthimoides*); (5) apical third of valva with slightly developed dorsal projection (Fig. 83) (dorsal projection well-developed in *Paryphthimoides*); (6) cornutal patches with half-length of posterior region of aedeagus (Fig. 86) (about 2/3 or more of posterior region of aedeagus in *Paryphthimoides*); (7) lamella antevaginalis developed (Fig. 88) (absent or reduced in *Paryphthimoides*).

Discussion. Molecular phylogeny (M. Espeland *et al., in prep.*) has suggested *Genus E pseudoconfusa* in a distinct clade, but sister to species of *Paryphthimoides*. Morphological characters of venation, male and female genitalia (cited in Diagnosis section) also supports that and justifies the placement of *pseudoconfusa* and *joycea* in this new genus rather than in *Paryphthimoides* or any other Euptychiina genera. Although Singer *et al.* (1983) described both species in *Cissia, C. joyceae* was placed in "*Incertis sedis*" due the absence of immature data, while *C. pseudoconfusa* was placed in "*confusa* subgroup" together with *C. confusa* and *C. myncea* by similarities between pupa and larvae, such as the developed cephalic projection of larvae and dorsal abdominals projections of pupae. Studies on immature stages of Euptychiina species are still scarce to evaluate how those characters cited by Singer *et al.* (1983) have evolved within the subtribe. Although the low quality of the male genitalia photos in Singer's work, morphology of gnathos, uncus and valva allows the easy recognition of *joycea* and *pseudoconfusa* as related species, and very distinct to *confusa*, *palladia* and *labe*, for example. The opinion of the authors that morphological features of immature provides

better support in taxonomic studies than genitalic morphology and venation (Singer *et al.* 1983: 117) probably led them to underestimate their data.

Checklist of *Genus E*

Genus E Zacca, Casagrande & Mielke **gen. n.**

Genus E pseudoconfusa (Singer, DeVries & Ehrlich, 1983) **comb. n.**

Genus E joyceae (Singer, DeVries & Ehrlich, 1983) **comb. n.**

***Genus E pseudoconfusa* (Singer, DeVries & Ehrlich, 1983)** (Figs 76-90, 92) **comb. n.**

Euptychia confusa [misidentification]; Weymer, 1911, pl. 47b.

Cissia pseudoconfusa Singer, DeVries & Ehrlich, 1983: 113, figs 2B, 3B, 4G, 4L; holotype: Costa Rica, Cartago, Turrialba; NHMUK (examined). – DeVries, 1987: 273, pl. 48, fig. 25 (male). – DeVries, 1988: 103, 105. – Meerman & Boomsma, 1993: 42. – Maes, 1995: 27. – Luis-Martínez *et al*., 1995: 119. – Austin *et al*., 1996: 33. – Pozo *et al.*, 2003: 516. – Lamas, 2004: 218. – Luis-Martínez *et al*., 2004: 349. – Pozo *et al*., 2008: 415. – Marín & Uribe, 2009: 25. – Luis-Martínez *et al*., 2011: 23. – Vasquez *et al*., 2013: 6. – Luis-Martínez *et al*., 2016: 216.

Euptychia ? sp.; D'Abrera, 1988: 762 (male).

Diagnosis. *Genus E pseudoconfusa* resembles to *Genus E joyceae* **comb. n.**, but can be distinguished from that by (1) continuous median line in VFW (with a break at distal region of discal cell (Fig 75) in *Genus E joyceae*), (2) marginal line slightly broad at tornus (straight in *Genus E joyceae*) (Figs 77, 79), (3) narrow region between submarginal line and the series of submarginal ocelli (broad region in in *Genus E joyceae*), (4) uncus longer than tegumen (uncus as long as tegumen in *Genus E joyceae*) and, (5) aedeagus robust and longer than valva (aedeagus slender and smaller or same length as valva in *Genus E joyceae*). *Genus E pseudoconfusa* can also be confused to its sympatric *Inbio hilara* (C. Felder & R. Felder, 1867), but is easily distinguished by the absence of recurrent vein in FW discal cell, VFW with bipupillated ocelli (only one pupil in *I. hilara*), in addition to the shape of gnathos, uncus and valvae in male genitalia (see illustration of *I. hilara* in Nakahara *et al.* 2015: 530, fig. 3).

Male genitalia (Figs 83-87). Tegumen dorsally convex, laterally subtriangular with anterior region projected; uncus straight, basally wide, about 1 ½ length of tegumen, dorsally ovoid, apex truncated in dorsal view; gnathos straight with apex curved upwards, about half-length of uncus; combination of ventral arms of tegumen and dorsal arms of saccus straight; appendix angularis short; anterior projection of saccus developed, longer than gnathos and curved upwards; fultura superior absent; fultura inferior present; valva elongated and trapezoid, covered by long hairy-like setae latero-ventrally and short ones at inner side, costa developed and rectangular, dorsal margin straight with a developed dorsal projection at apical third, ventral margin slightly projected at median region, apex pointed and slightly serrated; aedeagus slightly sinuous, longer than valva, anterior region ovoid, posterior region as longer as anterior region, apex truncated with a latero-ventral plate bifid, distal opening ventral smaller than proximal opening.

Female genitalia (Figs 88-89). 8th tergite rectangular; papilla analis oblong, covered by long hairy-like setae at distal region, apophysis posterior short; lamella antevaginalis cuneate; ductus bursae membranous as long as corpus bursae; corpus bursae with paired signa dorsally.

Variation. Females have FW apex rounded, and yellowish-ochre patch on VFW brighter than in males. The size of ocellus in M_3-CuA_1 in DHW is intraspecific variable in this species, as well as line coloration varying between ochre and rufous. Anterior projection of saccus is also variable in size, width and shape.

Distribution. This species is distributed widely from Mexico to Colombia (Caldas, Cauca, César, Chiriguaná, Cundinamarca and La Guajira), Ecuador (Bolívar and Los Ríos) and Venezuela (Aragua) (Singer *et al*. 1983; plus examined material). It is sympatric with *Genus E joyceae* in Costa Rica, Heredia, Fincas de La Selva (Singer *et al* 1983).

Biology and phenology. Flies during all year around. It is common in primary forest and transitional areas between dryer scrub forest and humid tropical forest (Austin *et al*. 1996; Pozo *et al.* 2003). It has been recorded in canopy traps (DeVries 1988).

Host plants and immature. Recorded larval host plants includes undetermined species of *Panicum* L. (Poaceae) (Singer *et al.* 1983).

Type material and taxonomic history. *Cissia pseudoconfusa* Singer, DeVries &

Ehrlich, 1983 was described based on eleven specimens, with holotype male from Costa Rica and 10 paratypes from Mexico, Costa Rica, Panama and Ecuador.

Examined material. 65 males and 39 females (7 specimens dissected). MEXICO – *Quintana Roo*: 1 female, 16.IX.1958, ex-coll. H. Ebert, DZ 27.905 (DZUP); *Tabasco*: Teapa, 3 males, 2 females, no data, H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420931, BMNH(E) 1420962, BMNH(E) 1420932, BMNH(E) 1420963, BMNH(E) 1422214 (NHMUK); *Veracruz*: Atoyac, 6 males, 5 females, no data, H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420776, BMNH(E) 1420807*, BMNH(E) 1420838, BMNH(E) 1420869, BMNH(E) 1420900, BMNH(E) 1420777, BMNH(E) 1420808, BMNH(E) 1420839, BMNH(E) 1420870*, BMNH(E) 1420901, BMNH(E) 1421994 (NHMUK), Córdoba, 3 males, 1 female, no data, Runeli *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420683, BMNH(E) 1420714, BMNH(E) 1420745, BMNH(E) 1420746 (NHMUK); *Yucatán*: 1 female, no data, Uml. *leg*. (ZMHU), Piste, 2 males, 29.IX.1958, Welling *leg*., B. M. 1959-20, BMNH(E) 1420684, BMNH(E) 1421734 (NHMUK), 1 male, 20.X.1958, Welling *leg*., DZ 27.907 (DZUP), Valladolid, 1 male, no data, Gaumer *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420715 (NHMUK). BELIZE – *no specific locality*: 1 male, II.1917, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421243 (NHMUK); *Stann Creek*: Cockscomb base camp, 1 male, 18.IX.2004, J. Shuey & P. Labus *leg*., DZ 38.066 (DZUP), 1 female, 19.IX.2004, J. Shuey & P. Labus *leg*., DZ 38.065 (DZUP). GUATEMALA – *Alta Verapaz*: Choctum, 1 male, no data, F. D. Godman & O. Salvin *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420841 (NHMUK); *Baja Verapaz*: Panimá, 1 male, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420920 (NHMUK); *Izabal:* Polochic Valley, 6 males, no data, F. D. Godman & O. Salvin *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420809, BMNH(E) 1420840, BMNH(E) 1420871, BMNH(E) 1420902, BMNH(E) 1420933, BMNH(E) 1420964 (NHMUK). EL SALVADOR – *San Salvador*: Santa Tecla, 610 m, 1 female, IX-X.1926, A. Hall *leg*., Brit. Mus. 1927-240, BMNH(E) 1420716* (NHMUK); *Usulutan*: San Augustin, 1066 m, 1 female, IX-X.1926. A. Hall *leg*., Brit. Mus. 1927-240, BMNH(E) 1420747 (NHMUK). HONDURAS – *no specific locality*: 1 female, no data, no collector (ZSBS), 1 male, no data, purchased from Dyson, 45-123, BMNH(E) 1420686* (NHMUK); *Cortéz*: San Pedro Sula, 1 female, no data, W. Wittkugel *leg*., Ex Oberthür Coll. Brit. Mus. 1927-3, BMNH(E) 1420934* (NHMUK); *Tegucigalpa*: 1 female, no data, no collector, BMNH(E) 1420965 (NHMUK). NICARAGUA – *no specific locality*: 1 male, 2 females, no data, Hewiston Coll. 79-69, BMNH(E) 1420717*, BMNH(E) 1420687, BMNH(E) 1420718 (NHMUK); *Chontales*: 1 male, no data, Janson *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420748 (NHMUK). COSTA RICA – *no specific locality*: 1 male, 1 female, no data, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421241, BMNH(E) 1422245 (NHMUK); *Cartago*: Cachí, 1 male, 1 female, no data, H. Rogers *leg*., Godman-Salvin Coll. 1904-1,

BMNH(E) 1420811, BMNH(E) 1419988 (NHMUK), Juan Viñas, 2 males, 1 female, no data, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421210, BMNH(E) 1421272, BMNH(E) 1421025 (NHMUK); *Heredia*: Sarapiqui, La Selva Verde Lodge, 1 male, 5.I.2005, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421796 (NHMUK); *Limón*: Guápiles, 1 female, no data, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1420994 (NHMUK), Pandora, 1 male, 10.I.2005, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421981 (NHMUK), Siguirres, 1 male, 27.I.1973, V. Becker *leg*., DZ 27.906 (DZUP); *Osa Peninsula*: no specific locality, 1 male, 13.VI.1972, Becker *leg*., DZ 27.904 (DZUP). PANAMA – *no specific locality*: 3 males, XI.1907, Pemberton *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421056, BMNH(E) 1421087, BMNH(E) 1421273 (NHMUK), 2 males, 5 females, no data, rec. from P. Lathy, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421211, BMNH(E) 1421242, BMNH(E) 1420995, BMNH(E) 1421057, BMNH(E) 1421088*, BMNH(E) 1421119, BMNH(E) 1421150 (NHMUK), 1 female, no data, Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1420685 (NHMUK); *Cerro Campana*: 1 male, 27.IV.1947, R. E. Ellisom *leg*., Brit. Mus. 1948-295, BMNH(E) 1421703 (NHMUK); *Chiriqui*: 2 males, 1 female, no data, Ribbe *leg*. (ZMHU), 1 male, no data, Staudinger *leg*., 20586 (ZMHU), 1 female, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420749 (NHMUK), Bugaba, 245-460 m, 2 males, 1 female, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420780, BMNH(E) 1422307, BMNH(E) 1422276 (NHMUK), David, 1 male, no data, Champion *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420779 (NHMUK); *Colón*: Gamboa, Pipeline road, 1 male, 12.IX.2001, M. Majerus *leg.*, Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421827 (NHMUK), 1 female, 27.IX.2001, M. Majerus *leg.*, Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421765 (NHMUK), 1 male, 29.IX.2001, M. Majerus *leg.*, Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421858 (NHMUK); *Pedro Miguel*: 1 female, no data, no collector, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421026 (NHMUK); *Veraguas*: 3 males, 1 female, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421118, BMNH(E) 1421149, BMNH(E) 1421180, BMNH(E) 1421304 (NHMUK), Coiba Island, 1 female, 3.IX.1924, St. George Expedition, C. L. Collenette, Brit. Mus 1925-488, BMNH(E) 1421920 (NHMUK). COLOMBIA – *no specific locality*: 1 female, no data, no collector, Joicey Bequest Brit. Mus. 1934-120, BMNH(E) 1420778 (NHMUK), 1 male, no data, J. Carder *leg*., Joicey Bequest Brit. Mus. 1934-120, BMNH(E) 1420903 (NHMUK); *Caldas*: La Dourada, Guarinocito, 1 male, 12.IV.2012, Gaviria, F. *leg*., DZ 38.064 (DZUP); *Cauca*: Popayán, 1 male, no data, Kalbr. *leg*. (ZMHU); *César*: Valledupar, 1 male, no data, F. Simons *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420810 (NHMUK); *Chiriguaná*: Lake Sapatoza region, 1 male, 2 females, VIII-IX.1924, C. Allen *leg*., Brits. Mus. 1927-240, BMNH(E) 1420872, BMNH(E) 1421795, BMNH(E) 1421889 (NHMUK); *Cundinamarca*: La Mesa, 1600 m, 1 male, Mielke, Callaghan, Henao *leg*., DZ 33.783 (DZUP); *La Guajira*: Riohacha, 2743 m, 1 male, no data, Brown *leg*., Rothschild Bequest B. M. 1939-1,

BMNH(E) 1421303 (NHMUK). VENEZUELA – *no specific locality*: 1 female, no data, Hewitson Coll. 79-69, BMNH(E) 1420935 (NHMUK); *Aragua*: Maracay, 1000 m, 1 male, IX.1967, ex-coll. Nirton Tangerini, DZ 38.063 (DZUP). ECUADOR – *Bolívar*: Balzapamba, 1 male, XI.1983-II.1984, M. de Mathan *leg*., Ex Oberthür Coll. Brit. Mus. 1927-3, BMNH(E) 1420873 (NHMUK); *Los Ríos*: La Chima, 1 male, VI-VII.1893, M. de Mathan *leg*., Ex Oberthür Coll. Brit. Mus. 1927-3, BMNH(E) 1422338 (NHMUK), Quevedo, St. Ana Maria, 1 male, no data, von Buchwald *leg*., Joicey Bequest Brit. Mus. 1934-120, BMNH(E) 1419989 (NHMUK).

***Genus E joyceae* (Singer, DeVries & Ehrlich, 1983)** (Figs 74-75, 90, 91) **comb. n.**

Cissia joyceae Singer, DeVries & Ehrlich, 1983: 115, figs 2D (male), 3D (male genitalia); holotype: Costa Rica, Heredia, Fincas La Selva; NHMUK. – DeVries, 1987: 274, pl. 48, fig. 26 (male).

Diagnosis. See above under *Genus E pseudoconfusa*.

Remarks. This species was only known from two specimens (including the holotype) from Fincas La Selva (currently known as La Selva Biological Station), Costa Rica (Singer *et al.* 1983). One old specimen from Grose Smith collection, collected in Miramontes, Monteverde, Costa Rica was found and examined at NHMUK (voucher number BMNH(E) 1420842*). This is the only additional record to *Genus E joyceae* after exhaustive searches in several collections (see list of collections in Material and Methods section). Comparative morphology of a limited number of specimens makes it difficult to determine if those wing pattern and male genitalia characters of *Genus E joyceae* (listed above in Diagnosis section of *Genus E pseudoconfusa*) are mere variation or, are indeed good characters to define this species. For now, we have no other choice than considered *Genus E pseudoconfusa* and *Genus E. joyceae* as distinct and valid species. In addition, biology, immature stages and host plants are still unknown to *Genus E. joyceae*.

***Genus F* Zacca, Casagrande & Mielke, gen. n.**

Type species. *Papilio myncea* Cramer, 1780.

Diagnosis and description. *Genus F* differs from all other Euptychiina genera by the following set of characters: (1) hairy eyes; (2) DHW with developed faded ocellus in

CuA_1-CuA_2; (3) VFW with umbra forming a wide band from R_{4+5} to 2A or tapering between M_3-2A; (4) VFW with marginal line straight; (5) VFW and VHW with wide (approximately 0.1 mm) submedian and median lines; (6) VHW submarginal region with five ocelli placed on umbra; (7) VHW with well-developed ocelli in M_2-M_3 and M_3-CuA_1; (8) VHW ocelli M_2-M_3 and M_3-CuA_1 with faded ocellar spot and pupils; (9) VHW ocellus M_2-M_3 displaced from the others in direction to median line; (10) VHW with regular and thin marginal line at tornus; (11) VHW with median and submarginal lines becoming close to each other at tornus; (12) VHW submarginal line crenulated on its entire length and distally pointed; (13) uncus about 1 ½ length of tegumen, laterally sinuous, dorsally elliptical at mid-apical region and apex pointed; (14) apical third of valva with dorsal projection slightly serrated; (15) anterior projection of saccus as long as gnathos; (16) combination of ventral arms of tegumen and dorsal arms of saccus angulated; (17) lamella antevaginalis and postvaginalis absent.

Discussion. The new genus here proposed agrees with Singer's *et al.* (1983) "confusa-subgroup", except by the removal of *pseudoconfusa* to *Genus E* together with *Genus E. joyceae.* The species *Magneuptychia fugitiva* Lamas, [1997] and a new species from western Amazonian Brazil (Acre) and eastern Ecuador are also included in *Genus F*, but their taxonomy will be treated in an ongoing paper (M. Benmesbah *et al*., *in prep.*). Undoubtedly, future studies using DNA barcoding will helps to reveal additional cryptic species to this genus, especially considering the highly homogeneity in the genitalia morphologies compared to other Euptychiina genera.

Checklist of *Genus F*

Genus F Zacca, Casagrande & Mielke **gen. n.**

Genus F myncea (Cramer, 1780) **comb. n.**

Papilio crantor Fabricius, 1793

Neonympha clerica Herrich-Schäffer, 1865

Euptychia pytheus Möschler, 1882

Genus F maripa (Brévignon, 2005) **comb. n.**

Genus F confusa (Staudinger, 1867) **comb. n.**

Genus F confusa confusa (Staudinger, 1867) **comb. n.**

Genus F confusa ssp.1 Zacca, Casagrande & Mielke **ssp. n.**

Genus F sp.1 Zacca, Casagrande & Mielke **sp. nov.**

Genus F sp.2 Zacca, Casagrande & Mielke **sp. nov.**

Genus F sp.3 Zacca, Casagrande & Mielke **sp. nov.**

Genus F sp.4 Zacca, Casagrande & Mielke **sp. nov.**

***Genus F myncea* (Cramer, 1780) comb. n.** (Figures 93-98, 109-112, 121-122, 123-127, 153-154, 173, 177-178)

Papilio myncea Cramer, 1780: 10, pl. 293, fig. C; syntype: Suriname. – Stoll, 1782 *in* Cramer, 1780-1782: 9. – Singer *et al*., 1983: 111; neotype: Suriname; NHMUK (examined).
Papilio crantor Fabricius, 1793: 158. – Donovan, 1800: pl. 36.
Euptychia myncea; Hübner, [1819]: 54. – Westwood, 1851 *in* Doubleday: 373. – Butler, 1867: 461. – Butler, 1868: 15. – Kirby, 1871: 47. – Scudder, 1875: 173. – Distant, 1876: 12. – Butler, 1877: 118. – Kirby, 1879: 134. – Kaye, 1904: 179. – Weymer, 1911: 199. – Gaede, 1931: 456. – Barcant, 1970: 159. – D'Abrera, 1988: 762.
Satyrus myncea; Godart, [1823]: 463, 488.
Satyrus crantor; Godart, [1823]: 488
Euptychia crantor; Westwood, 1851 *in* Doubleday: 373.
Neonympha clerica Herrich-Scäffer, 1865: 69.
Euptychia pytheus Möschler, 1882: 319, pl. 17, fig. 13; lectotype: [Surinam] Paramaribo; ZMHU [examined].
Euptychia penelope var. *pytheus* Weymer, 1911: 200. – Gaede, 1931: 459.
Euptychia palladia [misidentification]; Weymer, 1911: pl. 47b. – Barcant, 1970: 160, pl. 13, fig. 9.
Euptychia ocypete [misidentification]; Weymer, 1911: pl. 47b.
Euptychia myncea isolata Kaye, 1921: 112; syntype: Trinidad; lectotype: Trinidad; MGCL (examined).
Cissia myncea; Singer *et al*., 1983: 111, figs 1A-1B, 4I (adult, larva). – Lamas, 1991: 10. – Singer & Ehrlich, 1993: 248. – Lamas, 1994: 165. – Lamas, [1997]: 65. – Lamas, 2003: appendix 2, 203. – Lamas, 2004: 218. – Murray & Prowell, 2005: 69. – Beccaloni *et al*., 2008: 328. – Brévignon, 2008: 71, figs 31a-31c (adult, male genitalia). – Marín & Uribe, 2009: 25. – Peña *et al*., 2010: 246. – Paluch *et al*., 2011: 235. – Brévignon & Benmesbah, 2012: 52. – Cock, 2014: 11. – Paluch *et al*. 2016: 4. – Queiroz-Santos *et al*., 2016: appendix.
Euptychia thobiei [misidentification]; D'Abrera, 1988:762 (male).
Euptychia helle [misidentification]; D'Abrera, 1988: 762 (male).
Papilio clarissa var. *pitheus;* Lamas, 2004

Diagnosis. *Genus F myncea* differs from its congeners by its light greyish ground colour in VW, VFW with yellowish-brown scaling on the proximal side of the median line, valva with pointed and thin distal region and developed dorsal teeth (Fig. 123). It is distinguished from *Genus D palladia* mainly by the VHW without ocellus between 2A and inner margin, and straight marginal line at tornus (dilated in *Genus D palladia*). *Genus F myncea* differs from *Magneuptychia ocypete* by its small size (FW length: 18-24 mm, against 24-26 mm in *M. ocypete*), VFW with three ocelli from M_1 to CuA_1, being ocelli in M_2-CuA_1 with developed silvery (or bluish) pupils, VHW with ocelli M_2-CuA_1 occupying almost all the space of the cell and with well-developed silvery (or bluish) pupils, in addition to the straight marginal line at tornus (broadly dilated in *Magneuptychia ocypete*).

Male genitalia (Figs 123-127). Tegumen dorsally convex, laterally subtriangular with anterior region projected; uncus sinuous, basally wide, about twice longer than tegumen, dorsally elliptical, apex pointed dorsal view; gnathos slightly sinuous with apex curved upwards, about 2/3 length of uncus; combination of ventral arms of tegumen and dorsal arms of saccus angulated; appendix angularis developed; anterior projection of saccus developed, smaller than gnathos and curved upwards; fultura superior absent; fultura inferior present; valva elongated and trapezoid, covered by long hairy-like setae latero-ventrally and short ones at inner side, costa developed and triangular, dorsal margin straight with small dorsal projection at apical third, ventral margin slightly projected at median region, apex pointed and serrated; aedeagus slightly sinuous, smaller than valva, anterior region rounded, posterior region longer than anterior region, apex truncated, distal opening ventral longer than proximal opening; two cornutal patches.

Female genitalia (Figs 153-154). 8^{th} tergite rectangular; papilla analis laterally subsquared, covered by long hairy-like setae at distal region, apophysis posterior absent; lamella antevaginalis and postvaginalis absent; ductus bursae membranous about 2 times longer than corpus bursae; corpus bursae with paired signa dorsally.

Variation. In general, females are smaller than males (FW length – male: 21-25 m; female: 18-21 mm) and have well-marked dorsal ocellus in VHW. The yellowish-brown scaling on the proximal side of the median line in VW can vary in colour intensity and width in both sexes, although it is more evident in females. In general, this yellowish-brown scaling is absent in individuals from both sexes in southeastern Brazil (Rio de

Janeiro, Minas Gerais and São Paulo), which are also larger (FW length: 21-25 mm) (Figs 97-98) than Amazonian specimens (FW length: 18-20 mm). However, no differences in genitalia were found when comparing individuals from Amazonian and Atlantic Forest, indicating that this species shows clinal variation regarding its wing phenotype – small individuals with darker phenotype and brightness pupils in ventral ocelli in Amazonian specimens, and large specimens with lighter phenotype and faded or reduced ventral ocelli in Brazilian Atlantic Forest. This reason was considered sufficient to not recognize subspecific taxa within this species. In addition, tegumen can also vary between slightly flattened and convex, and dorsal projection of valva shows variable size, as well as the length of apex valva.

Distribution. This species is distributed widely from Panamá (Chiriqui) to southeastern Brazil (São Paulo). Occurs mainly in association with Amazonian and Atlantic Forest, but can also be found in transitional areas in association with dry forests and riparian areas (Fig. 178). It is found from sea level to about 1000 m. From phenotypically similar species, *Genus F myncea* is sympatric with (1) *Magneuptychia ocypete* in Venezuela, Guyana, Suriname, French Guiana (Cayenne and Saint-Laurent du Maroni) and Brazil (Acre, Amazonas, Amapá, Mato Grosso and Pará); (2) *Genus F confusa confusa* in Panama (Chiriqui) and Venezuela; and (3) *Genus D palladia* in Panama (Chiriqui), Trinidad and Tobago (Port of Spain) and Brazil (Acre, Amazonas, Maranhão, Mato Grosso, Pernambuco and Roraima). The choice of not including literature records in the distributional map is due to the great confusion regarding the identity of *Genus F myncea*. In this case, it is preferable only include specimens from examined collections and/or photos examined by the author.

Biology and phenology. *Genus F myncea* is multivoltine and flies throughout all year round. It is also attracted by bait traps.

Host plants and immature. Recorded larval host plants includes undetermined species of *Cyperus* L. and *Scleria* Bergius (Cyperaceae), *Ichnanthus pallens* (Sw.), *Lasiacis sloanei* (Griseb.), *Panicum pilosum* Sw., *Panicum polygonatum* Schrad. (Poaceae) (Singer *et al.* 1983; Beccaloni *et al.* 2008)

Type material, lectotype designation and taxonomic history. *Papilio myncea* Cramer, 1780 was described based on an unstated number of specimens from Suriname, deposited at Stoll collection. This collection is currently deposited at NHMUK, and Singer *et al.*

1983 failed to locate those syntypes, although had choose a contemporary specimen from Fruhstorfer's collection (from the same type locality) as the neotype *P. myncea* (Fig. 109).

Papilio crantor Fabricius, 1793 was described based on an unstated number of specimens from India in Drury's collection. Donovan (1800) provided the illustration of this species (Fig. 112), and it somewhat resembles to *Papilio myncea* Cramer 1780, mainly by the two wide brown submedian and median lines in VW and five ocelli in VHW (the second and fifth ocelli with developed dark ocellar spot and reduced silvery pupils). Butler (1867) was not able to find any syntype of this species at NHMUK, where Drury's collection is deposited in, and here we also failed to detect this species at this collection, after exhaustive searches. Butler (1877: 118) stated that Donovan's illustration of *P. crantor* is not reliable, and decide not including it on his citation. Considering that Euptychiina comprises species from Neotropical region (except *Paleonympha opalina* that occurs in SE Asia), it is possible that Drury's syntypes of *P. crantor* were wrongly labelled. In addition, Fabricius' description mentioned only two ocelli in VFW and, in spite of presence/absence of ocelli be variable, all specimens of *Genus F myncea* here examined have three ocelli in VFW; one subapical with well-developed dark ocellar spot circled by yellow ring and with two silvery reduced pupils, and two ocelli in M_2-CuA_1 with reduced and faded ocellar dark spot circled by yellow ring and two well-developed silvery pupils. Although designation of neotype is recommend in cases of complex taxonomy, we believe the suppression of the name *Papilio crantor* is more indicate in this case, considering that we could not find the syntypes of *Papilio crantor* neither specimens that totally matches with Fabricius' description of *Papilio crantor*.

Neonympha clerica Herrich-Schäffer, 1865 is an unnecessary replacement name to *Papilio myncea*, and it is correctly treated as a junior synonym of that by Lamas (2004).

Euptychia pytheus Möschler, 1882 was described based on at least one male and one female from Paramaribo, Suriname. A female syntype was found at ZMHU, and it is herein designated as the lectotype of *E. pytheus* (Fig. 110); it has the following labels: /Origin/ Surinam[e], Paramaribo, 75/ Type Verh. Z. B. Ges. Wien. 1882, p. 319 t.17 f.3 [illegible handwritten]/ ex collect. Staudinger/ *Eu[ptychia] pytheus* Möschler [handwritten]/ Coll. Möschl[er]/ *pytheys* Möschl[er]/; and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia pytheus* Möschler, 1882. T. Zacca det. 2016/. ZMHU. The last two labels will be sent to the curator later. *Euptychia pytheus* was treated

as a form of *Euptychia penelope* by Weymer (1911), and followed by Gaede (1931). Singer *et al*. (1983) did not include this species in their study. Morphological study of syntypes of *E. pytheus* deposited at ZMHU, plus additional specimens in other collections, confirms that this species is a junior synonym of *Genus F myncea*, and not of *Cissia penelope* as suggested by Lamas (2004).

Euptychia myncea isolata Kaye, 1921 was described based on an unstated number of specimens from Trinidad. According to Kaye (1921) the population of Trinidad deserved a distinct name because of its smaller size, darker wings phenotype and reduced size of ventral ocelli. A male syntype of *Euptychia myncea isolata* was found at MGCL (Fig. 111), and it is herein designated as the lectotype of this species; it has the following labels: /Type/ *myncea insulata* [sic] Kaye/ *E. myncea/* Trinidad '98 W./ MGCL/FLMNH specimen no. 47151/; and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia myncea isolata* Kaye, 1921. T. Zacca det. 2016/. MGCL. The last two labels will be sent to the curator later. This subspecies was not cited in Lamas (2004). Cock (2014) argued there was no reason for treating the population of Trinidad as a distinct subspecies and treat it as a junior synonym of *E. myncea.* Here we confirm Cock's statement; diagnostic characters listed by Kaye (1921) are indeed variable in specimens of *Genus F myncea*.

Remarks. Weymer (1911: pl. 47b) illustrated a specimen under the name *Euptychia ocypete*, although this specimen agrees with *Cissia myncea* (Cramer, 1780), in particular due the yellowish-brown scaling on the proximal side of the submarginal line on VFW. The specimen illustrated as *E. helle* in D'Abrera (1988: 762) also agrees with *C. myncea* by having yellowish-brown scaling on the proximal side of the submarginal line on VFW and no dilated marginal line at tornus in VHW. D'Abrera (1988) also misidentified a male specimen of *Euptychia myncea* deposited at NHMUK as *Neonympha thobiei* Capronnier, 1881, which led to Lamas (2004) treated this species as a synonym of *Cissia myncea*. This error was rectified in Lamas (2006), by correctly considering *N. thobiei* as a junior synonym of *Yphthimoides affinis* (Butler, 1867).

Examined material. 207 males, 150 females (27 specimens dissected). PANAMA – *Chiriqui*: 1 male, no data, Champion *leg*., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1420996 (NHMUK). COLOMBIA – *Puntumayo*: Mocoa, Hornayacu, 550 m, 1 male, 9.III.2013, T. Pyrcz *leg*. (MZUJ). VENEZUELA – *Apure*: 1 male, 3.II.1989, Klages *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421060 (NHMUK); *Sucre*: El Pilar, 1 male, no data, H. H. Smith *leg*.,

Godman-Salvin Coll. 1904-1, BMNH(E) 1420998 (NHMUK). TRINIDAD AND TOBAGO – *no specific locality*: 2 males, XII.1911, Miss Marg Fountaine *leg.*, Ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421184, BMNH(E) 1420999* (NHMUK), 1 male, no data, A. G. B. Russell *leg*., B. M. 1944-28, BMNH(E) 1421215 (NHMUK), 1 male, no data, Ex Grose Smith 1910, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421246* (NHMUK), 4 males, no data, Pres. by H. Caracciole, 1903-128, BMNH(E) 1421277*, BMNH(E) 1421030, BMNH(E) 1421092, BMNH(E) 1421186 (NHMUK), 3 males, II.1932, A. Hall *leg*., Brits. Mus. 1935-94, BMNH(E) 1421123, BMNH(E) 1421038*, BMNH(E) 1421069 (NHMUK), 2 males, no data, W. G. Sheldon Bequest, B. M. 1944-37, BMNH(E) 1421154, BMNH(E) 1421185 (NHMUK), 1 male, no data, Rotschild Bequest B. M. 1939-1, BMNH(E) 1421278 (NHMUK); *Port of Spain*: Caparo Valley, 4 males, 1 female, no data. F. Birch *leg*., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421308, BMNH(E) 1421061*, BMNH(E) 1421000, BMNH(E) 1421124, BMNH(E) 1421007 (NHMUK), 2 males, XII.1896, Dr Rendall *leg.*, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421216, BMNH(E) 1421093* (NHMUK), El Tucuche, 1 male, VIII.1905, F. Birch *leg*., BMNH(E) 1421247 (NHMUK), R. Stanway Parris, 2 males, II.1921, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421309, BMNH(E) 1421031 (NHMUK), Maraval, 1 male, VII.1891, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421217 (NHMUK), Sangre Grande, 1 male, II.1922, T. T. Dyer *leg*., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421155 (NHMUK). GUYANA – *no specific locality*: 1 male, no data, Crowley Bequest 1901-78, BMNH(E) 1421280 (NHMUK), 1 male, no data, Parish *leg*., ex Grose Smith 1910, BMNH(E) 1421002 (NHMUK); *Cuyuni-Mazaruni*: Camarang river, 1 male, no data, H. Whitley *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421187 (NHMUK), Omai mine, 1 male, no data, W. Schaus, 1905-244, BMNH(E) 1421156 (NHMUK), 1 male, [no month].1903, ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421218* (NHMUK); *Essequibo*: Bartica, 4 males, 3 females, no data, H. S. Parish *leg*., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421032, BMNH(E) 1421094*, BMNH(E) 1421125, BMNH(E) 1421249, BMNH(E) 1421311, BMNH(E) 1421013, BMNH(E) 1421064 (NHMUK), Demerara river, 1 female, no data, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421063* (NHMUK). SURINAME – *no specific locality*: 1 male, 1 female, no data, ex-coll. Fruhstorfer, Fruhstorfer Coll. B. M. 1937-285, BMNH(E) 1421248, BMNH(E) 1421001 (NHMUK), 2 males, V-IX.[no year], Fruhstorfer, Fruhstorfer Coll. B. M. 1937-285, BMNH(E) 1421279, BMNH(E) 1421310* (NHMUK); *Pará*: Bersaba, 1 female, no data, Michls *leg*., (ZMHU). FRENCH GUIANA – *no specific locality*: 1 male, 1 female, no data, C. Bar Coll., ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421126, BMNH(E) 1421068 (NHMUK), 1 male, 1 female, I. 2015, M. Benmesbah *leg.*, DZ 38.125, DZ 38.137 (DZUP); *Cayenne*: 2 males, no data, ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421095, BMNH(E) 1421281 (NHMUK), 5 males, 1 female, no data, C. Bar *leg*., ex Deyrolle, Godman-Salvin Coll. 1904-1, BMNH(E) 1421157, BMNH(E) 1421188, BMNH(E) 1421250, BMNH(E) 1421129, BMNH(E) 1421160, BMNH(E) 1421099*

(NHMUK), 1 male, 1 female, no data, no collector (ZMHU), Annamite, 1 male, I.2015, M. Benmesbah *leg.*, DZ 38.138, DZ 38.068* (DZUP). BRAZIL – *Acre*: Cruzeiro do Sul, 200 m, 1 female, 9-11.IX.1972, H. Ebert *leg*, DZ 27.943 (DZUP), 1 male, 5.VIII.1973, H. Ebert *leg.*, DZ 27.952 (DZUP), 1 female, 7.VIII.1973, H. Ebert *leg.*, DZ 27.951 (DZUP), 1 female, 9.IX.1973, H. Ebert *leg.*, DZ 27.965 (DZUP), Japim, Pentencostes, 7°38'10"S 72°48'17"W, 1 female, 8.V.2011, Mielke & Casagrande *leg*., DZ 29.377 (DZUP), Mâncio Lima, Parque Nacional Serra do Divisor, north portion, 7°26'50"S 73°39'52"W, 200-400 m, 1 male, 1 female, 10-21.IX.2011, D. Dolibaina & D. Moura *leg.*, DZ 38.098, DZ 38.106 (DZUP), Moa river, 7°26'52"S 73°39'55"W, 4 males, 7 females, 20-27.VI.2013, Mielke, Casagrande, Carneiro, Dias & Dolibaina *leg.*, DZ 29.545, DZ 29.542, DZ 38.099, DZ 29.556, DZ 29.546, DZ 29.590, DZ 29.557, DZ 29.558, DZ 29.591, DZ 29.592, DZ 29.541* (DZUP), 2 males, 3 females, 23-30.VIII.2014, Mielke, Casagrande, Carneiro, Dias, Dolibaina, Siewert & Salik *leg.*, DZ 38.101, DZ 38.102, DZ 38.105, DZ 33.681*, DZ 38.107 (DZUP), Marechal Thaumaturgo, RESEX Alto do Juruá, 1 male, IX.1997, no colletor (ZUEC), Porto Acre, Humaitá Reserve, 1 female, 28-31.VII.2008, Mielke & Casagrande *leg*., DZ 38.100 (DZUP), Senador Guimard, Catuaba Reserve, 1 female, 23-27.VII.2008, Mielke & Casagrande *leg*., DZ 38.103 (DZUP), 1 female, 31.I-5.II.2009, Mielke & Casagrande *leg*., DZ 38.108 (DZUP), 10°4'27"S 67°37'17"W, 200 m, 1 male, 1 female, 27.VIII-5.IX.2011, D. Dolibaina & D. Moura *leg*., DZ 38.104, DZ 38.114 (DZUP); *Rondônia*: Jarú, 250 m, 2 males, 1 female, III.1976, H. Ebert *leg*., DZ 27.937, DZ 27.936, DZ 27.935 (DZUP), 1 female, V.1977, H. Ebert *leg.*, DZ 38.112 (DZUP), 2 males, 1 female, 4-12.IX.1977, Gifford & Negrett *leg*., DZ 27.903, DZ 27.961, DZ 27.947 (DZUP), Ouro Preto, 1 female, 18.V.1978, Raw *leg*., DZ 27.963 (DZUP), 1 female, 20.VI.1978, Raw *leg*., DZ 27.857 (DZUP), Pimenta Bueno, Riozinho, 200 m, 1 female, 7.II.1972, Mielke & Brown *leg.*, DZ 29.909 (DZUP), Porto Velho, 1 female, 17.IX.1978, Gifford *leg.*, DZ 38.115 (DZUP); *Amazonas*: 1 male, I.[no year], Rothschild Bequest 1939-1, BMNH(E) 1421159 (NHMUK), 1 male, no data, Fassl Coll. in Arp Coll. (ZSBS), Eirunepé, RESEX Gregório river, Comunidade Lago Grande, 7°10'11"S 70°49'08"W, 1 male, 18-23.V.2011, Mielke & Casagrande *leg*., DZ 38.110 (DZUP), Humaitá, 1 male, 2 females, VII-IX.1906, M. de Mathan *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421251, BMNH(E) 1421161*, BMNH(E) 1421223 (NHMUK), Ipixuna, Comunidade São Vicente, Liberdade river, 7°21'47"S 71°52'07"W, 1 male, 1 female, 12-15.V.2011, Mielke & Casagrande *leg.*, DZ 38.126, DZ 39.111* (DZUP), 3 females, 18-23.V.2011, Mielke & Casagrande *leg.*, DZ 38.113, DZ 38.109, DZ 38.111 (DZUP), Manaus, Ducke Reserve, 2°53'S 59°57'W, 1 female, 10-13.VIII.2010, F. Fias & D. Bonfantti *leg*., DZ 29.378 (DZUP), Manicoré, 1 male, no data, Hahnel *leg*., (ZMHU), Massauari, 1 male, 1 female, no data, Hahnnel *leg.* (ZMHU), São Paulo de Olivença, 1 male, VI-VII.1883, M. de Mathan *leg.*, ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421284 (NHMUK), 1 male, VIII.1907, M. de Mathan *leg.*, Rothschild Bequest B. M. 1939-1, BMNH(E) 1421220 (NHMUK), 1 male, no data,

M. de Mathan *leg.*, ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421037 (NHMUK), 1 male, no data, Michls *leg*. (ZMHU), Tefé, 1 male, no data, ex-coll. Staudinger, BMNH(E) 1421003 (NHMUK), 1 male, [no month].1879, M. de Mathan *leg*., ex Oberthür Coll. Brist. Mus. 1927-3, BMNH(E) 1421254 (NHMUK), 2 males, 2 females, I.1905, M. de Mathan *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421313, BMNH(E) 1421128*, BMNH(E) 1421193, BMNH(E) 1421224 (NHMUK), 1 male, 1 female, IX.1907, M. de Mathan *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421004, BMNH(E) 1421282 (NHMUK), Tefé, 1 female, no data, Hahnnel *leg*. (ZMHU); *Pará*: 2 males, no data, Hewitson Coll. 79-69, BMNH(E) 1421034*, BMNH(E) 1421067 (NHMUK), 2 males, no data, H. W. Bates *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421096*, BMNH(E) 1421036 (NHMUK), 1 female, no data, Pres. by G. Graham 45-144, BMNH(E) 1421316 (NHMUK), Belém, 1 female, 16.VI.1954, W. Forster *leg*. (ZSBS), Utinga, 1 male, 18.X.1936, D'Almeida *leg*., DZ 38.136 (DZUP), Itaituba, 1 female, no data, B. Pohl *leg.*, DZ 27.931 (DZUP), Juriti, 2 males, 4 females, IV.1905, M. de Mathan *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1421158, BMNH(E) 1421189, BMNH(E) 1421035*, BMNH(E) 1421066, BMNH(E) 1421097, BMNH(E) 1421192 (NHMUK), 1 male, no data, Rosenberg *leg*., Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1421098 (NHMUK), Óbidos, 2 males, no data, M. de Mathan *leg.*, ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421253, BMNH(E) 1421006* (NHMUK), Oriximiná, Rio Cuminá, Igarapé dos Índios, 1 male, 16.X.1936, D'Almeida *leg.*, DZ 27.946 (DZUP), Rio Tapajós, 1 female, no data, H. W. Bates *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421285 (NHMUK), 1 female, VII.1987, ex-coll H. Ebert, DZ 38.124 (DZUP), 1 male, no data, Pohl *leg.*, DZ 27.916 (DZUP), 1 female, 19.IX.2013, no collector (ZUEC); *Roraima*: 1 male, no data, Crowley Bequest 1901-178, BMNH(E) 1421029* (NHMUK), 1 male, no data, H. Whitley *leg.*, Godman-Salvin Coll. 1904-1, BMNH(E) 1421127* (NHMUK), Alto Alegre, Ilha do Maracá, 2 males, 24-31.VII.1987, Mielke & Casagrande *leg*., DZ 27.908, DZ 27.958 (DZUP), Pacaraima, 800 m, 1 female, 28-30.V.1988, Mielke *leg*., DZ 27.898 (DZUP); *Amapá*: Macapá, 3 females, 16.XII.1978, Raw *leg.*, DZ 27.902, DZ 27.964, DZ 27.927 (DZUP), 9 Km N Curiau, 1 male, 2.VIII.2007, Mielke & Casagrande *leg.*, DZ 38.120 (DZUP), Serra do Navio, Rio Amapari, 100 m, 2 males, XI.1959, H. Ebert *leg*., DZ 27.912, DZ 27.954 (DZUP), 1 male, 23.IX.1963, D'Almeida *leg*., DZ 27.948 (DZUP), 1 female, 23-25.VII.2007, Mielke & Casagrande *leg*., DZ 38.118, DZ 38.123 (DZUP), 3 males, 29.VII.2007, Mielke & Casagrande *leg*., DZ 38.116, DZ 38.119 (DZUP), Assentamento, 1 female, 30.VII.2007, Mielke & Casagrande *leg.*, DZ 38.117 (DZUP); *Maranhão*: Feira Nova do Maranhão, 26 Km E, Fazenda Forquilha dos Brejos, 7°00'29"S 46°26'30"W, 1 male, 15-25.II.2012, O.-C. Mielke *leg.*, DZ 27.968 (DZUP), Maracaçumé, Montes Áureos, 1 female, no data, T. Belt *leg.*, Godman-Salvin Coll. 1904-1, BMNH(E) 1421130 (NHMUK), Imperatriz, 1 male, 3.VII.1974, Exc. Depto Zool., DZ 28.087 (DZUP), 1 male, 6.VII.1974, Exc. Depto Zool., DZ 27.901 (DZUP), 2 males, 18.VII.1974, Exc. Depto Zool., DZ 28.053, DZ 27.944 (DZUP).

Tocantins: Ilha do Bananal, 1 female, 9.IX.1978, Gifford *leg.*, DZ 27.899 (DZUP); *Pernambuco*: 1 male, no data, Pres. by Mrs Smith 45-70, BMNH(E) 1421190 (NHMUK), 1 male, no data, BMNH(E) 1421221 (NHMUK), 1 male, no data, Fortes *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421252 (NHMUK), Camaragipe, 1 male, 4.VIII.1951, ex-coll. H. Ebert, DZ 28.056 (DZUP), 1 female, 4.VII.1957, ex-coll. H. Ebert, DZ 27.930 (DZUP), 1 female, 11.VIII.1957, ex-coll. H. Ebert, DZ 27.996 (DZUP), 1 female, 28.X.1958, ex-coll. H. Ebert, DZ 27.928 (DZUP), 1 female, 2.IV.1960, Ebert *leg.*, DZ 27.926 (DZUP), 1 female, 24.I.1960, Ebert *leg.*, DZ 27.934 (DZUP), Escada, 1 male, 12.IX.1957, ex-coll. H. Ebert, DZ 27.918 (DZUP), Ipojuca, 1 male, 23.IX.1961, Ebert *leg*., DZ 27.911 (DZUP), São Lourenço da Mata, Tiúma, 100 m, 1 female, 20.VI.1957, ex-coll. H. Ebert, DZ 27.924 (DZUP), 1 male, 20.VII.1958, H. Ebert *leg.*, DZ 28.004 (DZUP), 1 male, 4.X.1958, H. Ebert *leg.*, DZ 27.959 (DZUP), 1 female, 3.I.1959, Ebert *leg.*, DZ 27.953 (DZUP), 1 female, 27.VII.1959, Ebert *leg.*, DZ 27.922 (DZUP), 1 female, 31.VII.1960 (DZUP), 2 males, 20.I.1962, Ebert *leg*., DZ 27.921, DZ 27.921 (DZUP), Recife, 1 female, 31.II.1954, ex-coll. H. Ebert, DZ 27.932 (DZUP), 1 female, 30.XI.1954, ex-coll. H. Ebert, DZ 27.919 (DZUP), Várzea, 1 male, 1 female, 15.IX.1957, ex-coll. H. Ebert, DZ 27.929, DZ 27.986 (DZUP), 1 female, 11.X.1958, Kesselring *leg.*, DZ 27.915 (DZUP), 1 female, 7.X.1961, Ebert *leg*., DZ 27.920 (DZUP), 1 male, VII.1970, Kesselring *leg.*, DZ 28.054 (DZUP); *Alagoas*: Junqueiro, Riachão, 1 male, 11.VIII.1973, A. Cardoso *leg.*, DZ 29.375 (DZUP), 1 male, 11.VIII.1974, A. Cardoso *leg.*, DZ 29.370 (DZUP), 1 female, 2.XI.1976, A. Cardoso *leg*., DZ 29.371 (DZUP), 1 female, 1.V.1980, A. Cardoso *leg.*, DZ 29.369 (DZUP), Maceió, 1 female, 21.IV.1968, A. Cardoso *leg*., DZ 29.373 (DZUP), 1 female, 14.VII.1973, Mielke *leg*., DZ 28.059* (DZUP), 1 male, 1 female, 7.IX.1974, A. Cardoso *leg.*, DZ 29.374, DZ 29.368 (DZUP), São Miguel dos Campos, 1 female, 18.IV.1962, A. Cardoso *leg*., DZ 29.376 (DZUP); *Bahia*: Camacan, 2 males, 21.VII.1977, Mielke, Moure & Elias *leg*., DZ 28.041, DZ 28.016 (DZUP), Serra Bonita, 1 female, 18-20.VII.2014, no collector (ZUEC), Encruzilhada, 2 males, no data, Ch. Pujol *leg.*, ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421314, BMNH(E) 1421005* (NHMUK), Itabuna, 1 male, 1 female, 21.VII.1978, Raw *leg*., DZ 28.061, DZ 5.265* (DZUP), 1 male, 9.IX.1978, Raw *leg*., DZ 28.045 (DZUP), Itamarajú, 100 m, 1 male, 20.VII.1977, Mielke, Moure & Elias *leg*., DZ 28.015 (DZUP), Itaparica, 2 males, 28.XII.1905, Maede-Waldo 1906-162, BMNH(E) 1421283*, BMNH(E) 1421222 (NHMUK), Jitaúna, Rio de Contas, 2 males, 150 m, 26.III.1969, Ebert *leg.*, DZ 28.014, DZ 28.037 (DZUP), Porto Seguro, Parque Nacional Monte Pascoal, 1 male, 20.VII.1977, Mielke & Moure *leg.*, DZ 28.011 (DZUP), Simões Filho, 1 female, 14.XI.1957, H. Ebert *leg*., DZ 27.910 (DZUP), São João do Paraíso, 30 Km N Camacan, 2 females, 22.VII.1977, Mielke, Moure & Elias *leg.*, DZ 28.046, DZ 28.084 (DZUP); *Goiás*: Goiânia, 1 female, 2.XI.1954, ex-coll. H. Ebert, DZ 27.913 (DZUP); *Mato Grosso*: Alta Floresta, Sete Quedas, Rio Teles Pires, 1 male, 18.IV.2009, no collector (ZUEC), Barra do Bugres, 150 m, 1 female, 11.VI.1974, E. Furtado *leg*., DZ 27.945 (DZUP), 1 male, 25.VI.1974, E. Furtado *leg*.,

DZ 27.946 (DZUP), 1 female, VII.1975, H. & H. D. Ebert *leg.*, DZ 27.941 (DZUP), Diamantino, Alto Rio Arinos, Fazenda São João, 300-400 m, 1 male, 1 female, 1-8.VIII.1974, H. & H. D. Ebert *leg.*, DZ 27.955, DZ 27.938 (DZUP), 1 female, 24.VII.1975, H. & H. D. Ebert *leg.*, DZ 27.940 (DZUP), 2 females, 12.I.1978, Mielke & Furtado *leg*., DZ 27.933, DZ 27.917 (DZUP), 1 male, 15.I.1978, Mielke & Furtado *leg*., DZ 27.960 (DZUP), 1 female, 21.VIII.1978, H. & H. D. Ebert *leg.*, DZ 27.939 (DZUP), Xavantina, 1 female, 14.I.1977, ex-coll. Gifford, DZ 27.900 (DZUP); *Minas Gerais*: Marliéria, Parque Estadual do Rio Doce, 200 m, 1 female, 9.IX.1972, H. Ebert *leg*., DZ 28.064 (DZUP), 1 female, 14.V.1974, H. Ebert *leg*., DZ 27.942 (DZUP), Teófilo Otoni, São Jacinto, 3 males, 3 females, no data, F. Birch *leg*., Rothschild Bequest 1939-1, BMNH(E) 1421225, BMNH(E) 1421256, BMNH(E) 1421287, BMNH(E) 1421133, BMNH(E) 1421164*, BMNH(E) 1421195 (NHMUK); *Espírito Santo*: Baixo Guandu, 1 female, 30.VIII.1970, C. & C. T. Elias *leg*., DZ 28.050 (DZUP), Conceição da Barra, 1 male, 8.VIII.1968, C. & C. T. Elias *leg*., DZ 28.048 (DZUP), 2 males, 1 female, 20.VI.1968, C. & C. T. Elias *leg*., DZ 28.035, DZ 28.051, DZ 28.024 (DZUP), Guarapari, 1 female, 16.VII.1975, H. Ebert *leg*., DZ 28.071 (DZUP), Linhares, 1 female, 17-26.II.1975, H. & H. D. Ebert *leg*., DZ 28.052 (DZUP), 1 male, 1 female, VII.1971, C. Elias *leg*., DZ 5.264*, DZ 28.022 (DZUP), 1 male, 18.IV.1974, C. Elias *leg*., DZ 28.036 (DZUP), 2 males, 25.VI.1974, C. Elias *leg*., DZ 28.028, DZ 28.044 (DZUP), 1 male, 22.VII.1974, C. Elias *leg*., DZ 28.023 (DZUP), 1 male, 28.VIII.1974, Elias *leg.*, DZ 27.969 (DZUP), 1 female, 10.IX.1974, C. Elias *leg*., DZ 28.027 (DZUP), 1 male, 1 female, IV.1978, C. Elias *leg*., DZ 28.030, DZ 28.038 (DZUP), 1 male, 10.IX.1979, C. Elias *leg.*, DZ 28.033 (DZUP), 1 male, 1 female, IX.1981, C. Elias *leg*., DZ 28.021, DZ 27.956 (DZUP), Reserva Florestal da Companhia do Vale do Rio Doce, 1 male, 17-26.VII.1975, H. & H. D. Ebert *leg*., DZ 28.017 (DZUP), Reserva Sooretama, 2 females, 29.VII.1966, Mielke & Brown *leg*., DZ 28.062 (DZUP), 2 males, 3 females, 19-26.I.2013, Mielke & Casagrande *leg*., DZ 29.536, DZ 29.537, DZ 29.538, DZ 29.539*, DZ 29.379 (DZUP), 2 females, 21-25.I.2014, Mielke & Casagrande *leg*., DZ 31.579, DZ 38.127 (DZUP), Santa Leopoldina, 50 m, 6 males, 3 females, 26.VII.1966, Mielke, Brown & Elias *leg*., DZ 28.031, DZ 28.013, DZ 28.010, DZ 28.060, DZ 28.069, DZ 28.047, DZ 28.032, DZ 28.025, DZ 28.049 (DZUP), 1 male, 18.VIII.1966, C. T. Elias *leg*., DZ 28.034* (DZUP), 1 male, 29.VII.1967, H. Ebert *leg*., DZ 28.000 (DZUP), Rio Santa Maria, 100-600 m, 1 male, 1 female, IX.1951, H. Ebert *leg*., DZ 27.983, DZ 27.995 (DZUP), Santa Teresa, 1 male, 10.IV.1966, C. & C. T. Elias *leg*., DZ 28.039 (DZUP); *Rio de Janeiro*: Duque de Caxias, Imbariê, 1 male, 8.VII.1954, ex-coll. H. Ebert, DZ 27.990 (DZUP), 1 male, 8.V.1955, ex-coll. H. Ebert, DZ 27.998 (DZUP), 1 female, 15.V.1955, ex-coll. H. Ebert, DZ 27.974 (DZUP), 1 female, 25.V.1955, ex-coll. H. Ebert, DZ 27.914 (DZUP), 1 male, 5.VI.1955, ex-coll. H. Ebert, DZ 28.001 (DZUP), 1 female, 14.VIII.1955, ex-coll. H. Ebert, DZ 27.978 (DZUP), 1 male, 27.VIII.1955, ex-coll. H. Ebert, DZ 27.985* (DZUP), 1 female, 3.I.1956, ex-coll. H. Ebert, DZ 27.988 (DZUP), 1 male, 21.IV.1956, ex-coll. H. Ebert, DZ 28.012 (DZUP), 1

male, 30.IV.1956, ex-coll. H. Ebert, DZ 27.997 (DZUP), 1 male, 13.V.1956, ex-coll. H. Ebert, DZ 27.999 (DZUP), 1 female, 21.VII.1957, ex-coll. H. Ebert, DZ 27.981 (DZUP), 1 male, 23.VII.1957, DZ 27.975* (DZUP), 24.VII.1957, H. Ebert *leg*., DZ 27.979* (DZUP), 1 male, 14.VII.1963, H. Ebert *leg*., DZ 28.008 (DZUP), 1 male, 16.VII.1963, H. Ebert *leg*., DZ 28.006 (DZUP), 1 male, 18.VII.1963, H. Ebert *leg*., DZ 27.980 (DZUP), 1 female, 29.VII.1964, H. Ebert *leg*., DZ 27.973 (DZUP), 1 male, 1.VIII.1964, H. Ebert *leg*., DZ 27.991 (DZUP), 1 female, 28.VII.1965, ex-coll. H. Ebert, DZ 27.971 (DZUP), 1 female, 22.II.1967, H. Ebert *leg*., DZ 27.970 (DZUP), 1 male, 23.VII.1969, H. Ebert *leg*., DZ 28.003 (DZUP), 1 male, 30.VII.1969, H. Ebert *leg*., DZ 28.065 (DZUP), 1 female, 10.IX.1980, ex-coll. H. Ebert, DZ 28.043 (DZUP), Xerém, 1 female, 15.VIII.1954, ex-coll. H. Ebert, DZ 28.055 (DZUP), 1 female, 12.VI.1955, ex-coll. H. Ebert, DZ 28.385 (DZUP), 2 females, 12.X.1955, ex-coll. H. Ebert, DZ 28.057, DZ 28.086 (DZUP), Magé, 1 male, 18.VII.1969, ex-coll. H. Ebert, DZ 28.063 (DZUP), Vila Inhomirim, 50-200 m, 1 female, 19.IV.1957, H. Ebert *leg*., DZ 27.976 (DZUP), 1 male, 23.VII.1957, H. Ebert *leg*., DZ 27.992* (DZUP), 1 male, 21.VII.1968, H. Ebert *leg*., DZ 28.009 (DZUP), 1 male, 29.VII.1968, H. Ebert *leg*., DZ 27.984 (DZUP), Nova Iguaçu, Jacutinga, Estrada Federal de Tinguá, 1 male, 19.IX.1937, D'Almeida *leg*., DZ 28.074* (DZUP), Parati, 25 m, 1 female, 17.VII.1966, H. Ebert *leg*., DZ 28.005 (DZUP), Petrópolis, 1 female, 11.X.1963, Gagarin *leg*., DZ 28.018 (DZUP), 1 male, 23.X.1964, Gagarin *leg*., DZ 28.020 (DZUP), 1 female, 27.X1964, Gagarin *leg*., DZ 28.066 (DZUP), Porto Real, 4 males, 2 females, no data, Rothschild Bequest 1939-1, BMNH(E) 1421101, BMNH(E) 1421132, BMNH(E) 1421163, BMNH(E) 1421194, BMNH(E) 1421071, BMNH(E) 1421102 (NHMUK), Rio de Janeiro, Icatú, 1 male, 1 female, 10.VI.1936, ex-coll. Gagarin, DZ 28.068, DZ 28.067 (DZUP), Laguna de Saquarema, 1 male, VIII-IX.1888, P. Germain *leg*., ex Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1421100 (NHMUK), Gávea, 1 male, 20.V.1941, ex-coll. Gagarin, DZ 28.072 (DZUP), Guapimirim, 1 male, 20.VIII.1939, ex-coll. Gagarin, DZ 28.042 (DZUP), 1 male, 29.VII.1964, H. Ebert *leg*., DZ 28.002 (DZUP), 1 male, 17.II.1966, H. Ebert, DZ 27.989 (DZUP), Jacarepaguá, 2 females, 15.IV.1920, D'Almeida *leg*., DZ 28.077, DZ 28.075 (DZUP), 1 male, 3.X.1920, D'Almeida *leg*., DZ 28.073 (DZUP), 1 female, 17.VI.1956, Gagarin & Ebert *leg*., DZ 28.083 (DZUP), 1 male, 9.XI.1958, D'Almeida *leg*., DZ 28.078 (DZUP), 1 female, 26.IV.1959, D'Almeida *leg*., DZ 28.080 (DZUP), 1 female, 31.III.1960, ex-coll. D'Almeida, DZ 28.081 (DZUP), 1 male, 16.VII.1961, D'Almeida *leg*., DZ 28.082 (DZUP), 1 male, 10.VII.1962, D'Almeida *leg*., DZ 28.079 (DZUP), Teresópolis, 1 female, 11.VIII.1935, D'Almeida *leg*., DZ 28.076 (DZUP); *São Paulo*: Ubatuba, 10 m, 1 male, 1 female, 18.IX.1962, H. Ebert *leg*., DZ 27.977, DZ 27.972 (DZUP), 1 male, 21.XII.1962, H. Ebert *leg*., DZ 27.993 (DZUP), 1 male, 30.III.1963, H. Ebert *leg*., DZ 27.994 (DZUP), 1 female, 8-20.IV.1966, H. Ebert *leg*., DZ 27.982 (DZUP), 1 female, 29.X.1967, H. Ebert *leg*., DZ 27.987 (DZUP), 1 male, 23.XII.1967, H. Ebert *leg*., DZ 28.007 (DZUP). PERU – *Madre de Dios*: Tambopata Reserve, 12°50'S 69°17'W, 300 m, 1 female,

28.X.1991, M. Casagrande *leg*., DZ 27.967 (DZUP).

***Genus F maripa* (Brévignon, 2005) comb. n.** (Figs 113-118, 128-132, 155-156, 177, 179)

Cissia maripa Brévignon, 2005: 394, figs 11-14, 52 (male, female, male genitalia); holotype: French Guiana, [Cayenne], Saint-Georges [de-l'Oyapock]; L. & C. Brévignon collection. – Brévignon, 2008: 72, figs 32a-32c (adult, male genitalia). – Brévignon & Benmesbah, 2012: 52.

Cissia ocypete (in part) [misidentification]; Mielke & Casagrande 1992: 180. – Mielke & Casagrande, 1998: 469, appendix 6.

Diagnosis. *Genus F maripa* differs from its congeners by the yellowish ground colour in VW, VFW with no yellowish scaling in submarginal region (present in *Genus F confusa* and *Genus F myncea*), valva with small dorsal projection at apical third (Fig. 128); developed dorsal projection in *Genus F myncea*) and absence of cornuti. *Genus F maripa* differs from *Magneuptychia ocypete* (Fabricius, 1776) by its smaller size (FW length: 21-24 mm against 24-26 mm in *M. ocypete*), VHW with marginal line not dilated at tornus, in addition to genitalic characters.

Male genitalia (Figs 128-132). Tegumen dorsally convex, laterally subtriangular with anterior region projected; uncus sinuous, basally wide, about 1 ½ length of tegumen, dorsally elliptical, apex pointed dorsal view; gnathos straight or slightly sinuous with apex curved upwards, about 2/3 length of uncus; combination of ventral arms of tegumen and dorsal arms of saccus slightly angulated; appendix angularis short; anterior projection of saccus developed, as long as gnathos and curved upwards; fultura superior absent; fultura inferior present; valva elongated and trapezoid, covered by long hairy-like setae latero-ventrally and short ones at inner side, costa developed and rectangular, dorsal margin straight with small dorsal projection at apical third, ventral margin slightly projected at median region, apex pointed and slightly serrated; aedeagus straight, about the same length of valva, anterior region bottle-shaped, posterior region 1 ½ longer than anterior region, apex truncated, distal opening ventral longer than proximal opening; cornuti absent or not evident.

Female genitalia (Figs 155-156). 8th tergite rectangular; papilla analis oblong, covered by long hairy-like setae at distal region, apophysis posterior absent; lamella antevaginalis

and postvaginalis absent; ductus bursae membranous about 2 ½ times longer than corpus bursae; corpus bursae with paired signa ventrally.

Variation. FW length can vary between 21-24 mm, in both males and females. The ground colouration of VW varies in shades of yellow (Figs 114, 116, 118). Ocelli in M_1-M_2 and M_2-M_3 in VFW can be faded and/or reduced in size. Submedian and median lines in VHW can reach or not each other at tornus.

Distribution. *Genus F maripa* was only known from the type locality in French Guiana, but its distributional range is wide extending to Brazil (Acre, Roraima, Maranhão, Goiás, Mato Grosso and São Paulo) in the present study (Fig. 179).

Biology and phenology. Fly throughout all year around. It is also attracted using baited traps (Mielke & Casagrande 1992, 1998).

Host plants and immature. Unknown.

Type material and taxonomic history. *Cissia maripa* Brévignon, 2005 was described based on only one male (holotype) and one female from Saint-Georges, Cayenne, French Guiana. This material is currently deposited at the private collection of L. & C. Brévigon.

Remarks. This species was misidentified as *Cissia ocypete* (Fabricius, 1776) (currently in *Magneuptychia* Forster, 1964) by Mielke & Casagrande (1992, 1998) that could be explained by the similarities on wing phenotype between *Genus F maripa* and *Magneuptychia ocypete*, in spite of the differences cited in Diagnosis section.

Examined material. 10 males, 4 females (5 specimens dissected). BRAZIL – *Acre*: Santa Rosa do Purus, 1 male, 11.VIII.2008, Mielke & Carneiro *leg*., DZ 38.070 (DZUP), Senador Guiomard, Reserva Catuaba, 1 female, 1.VIII.2008, Mielke & Carneiro *leg*., DZ 31.589 (DZUP); *Roraima*: Alto Alegre, Ilha do Maracá, 1 female, 26.XI-2.XII.1987, Mielke & Casagrande *leg*., DZ 38.089 (DZUP); *Maranhão*: Centro Novo do Maranhão, Igarapé Grurupi-uma, Aldeia Araçu, 50 Km E Canindé, 27.V.1963, Malkin *leg.*, DZ 22.131 (DZUP), Feira Nova do Maranhão, 26 km E, Fazenda Forquilha dos Brejos, 07°00'29"S 46°26'30"W, 4 males, 1 female, 14-21.VIII.2011, O. Mielke *leg*., DZ 38.135, DZ 38.077, DZ 38.071*, DZ 38.080, DZ 38.076 (DZUP), Imperatriz, 1 male, 5.VII.1974, Exc. Depto Zool., DZ 38.081 (DZUP), Retiro, 30 Km W Fortaleza dos Nogueiras, 470 m, 1 male, 18-23.I.2010, O. Mielke *leg*., DZ 38.078 (DZUP); *Goiás*: Ilha do Bananal, 1 female, 14-23.VI.1979, Raw *leg*., DZ 28.088 (DZUP); *Mato Grosso*: General Carneiro, 155 km W Barra do Garças, 520 m, 1 male, 23.VI.1972, Mielke & Brown *leg*., DZ

38.082* (DZUP); *São Paulo*: Mirandópolis, 1 male, 4.IX.1978, Gifford *leg*., DZ 28.089* (DZUP).

***Genus F confusa* (Staudinger, 1867) comb. n.**

Diagnosis. *Genus F confusa* differs from *Genus E pseudoconfusa* by (1) VHW with well-developed ocelli, occupying mostly of the space of cell, (2) VHW grayish brown in the region between umbra and submarginal line (creamy or yellowish in *Genus E pseudoconfusa*), (3) VHW with marginal straight on its entire length (dilated at tornus in *Genus E pseudoconfusa*). Compared to its congeners, *Genus F confusa* distinguished of *Genus F myncea* by (1) DHW with ocellus CuA_1-CuA_2 elliptical and well-developed, occupying mostly all the space of cell and (2) VHW with yellowish scaling between M_3-2A (absent in *Genus F myncea*), and from *Genus F maripa* by (1) VW greyish-brown ground colour (creamy in *Genus F maripa*) and (2) VFW with yellowish scaling in submarginal region (absent in *Genus F maripa*).

***Genus F confusa confusa* (Staudinger, 1887)** (Figs 161-163, 166-172, 174, 177, 180) **comb. n.**

Euptychia confusa Staudinger, 1887: 225; syntype: [Panamá], Chiriqui; ZMHU. – Godman & Salvin, [1901]: 652. – D'Abrera, 1988: 762 (male, female).

Cissia myncea [misidentification]; Staudinger, 1887: pl. 80 (female).

Euptychia labe var. *confusa*; Weymer, 1911: 200. – Gaede, 1931: 452.

Euptychia confusa [misidentification]; Weymer, 1911: 47b.

Argyreuptychia labe [misidentification]; Forster, 1964: 123, figs 142-143 (male genitalia); **syn.** *confusa*.

Cissia confusa; Singer *et al*., 1983: 112, figs 1C-1D, 2A, 3A, 4H, 4J-4K (adult, male genitalia, larva, pupa); lectotype: [Panamá], Chiriqui; ZMHU (examined). – DeVries, 1987: 273, pl. 48 (male). – Luis-Martínez *et al*., 1995: 119. – Lamas, 2004: 218. – Luis-Martínez *et al*., 2004: 349. – Beccaloni, 2008: 328. – Pozo *et al.* 2008: 415. – Luis-Martínez *et al*., 2016: 216.

Diagnosis. This subspecies differs from *Genus F confusa* ssp.1 **ssp.n.** by the (1) DW ground colour brown; (2) VHW with ocellus in $Sc+R_1$-M_1 occupying half-length of cell; (3) elliptical ocelli with tiny pupils in M_1-M_2 and CuA_1-CuA_2; (4) ocelli with faded pupils in both VFW and DHW; (5) VHW with yellowish scaling in submarginal region between

M_3-2A.

Male genitalia (Figs 166-170). Tegumen convex, laterally subtriangular; uncus sinuous, about two times length of tegumen, dorsally elliptical, apex laterally curved downwards and truncated in dorsal view; gnathos laterally sinuous, 2/3 length of uncus, larger at base and tapering at apex, combination of the ventral arm of tegumen and the dorsal arm of saccus angulated; appendix angularis short, wider at basal region; anterior projection of saccus developed, cylindrical, and smaller than gnathos; fultura superior absent; fultura inferior present; valva trapezoid covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa well-developed and sub-squared, dorsal margin straight with a slight serrated dorsal projection at apical third of valva, ventral margin slightly projected at median region, apex pointed, developed and serrated; aedeagus slightly sinuous, longer than valva, cylindrical, anterior region rectangular, posterior region as longer as anterior region, apex dorsally truncated and ventrally with bifid plate, distal opening ventral and smaller than the proximal opening; two thin cornutal patches.

Female genitalia (Figs 171-172). 8th tergite rectangular; papilla analis oblong covered by long hairy-like setae at distal region, apophysis posterior reduced; lamellae antevaginalis as two ventro-lateral plates weakly sclerotized at median region; lamellar postvaginalis absent; ductus bursae membranous; corpus bursae half-length of ductus bursae, with paired signa dorsally.

Variation. In general, ventral ocelli are larger in females. Anterior region of aedeagus can vary between rectangular and elliptical.

Distribution. This species is distributed widely from Mexico (Yucatán) to Colombia (Bolívar, Caldas, Cauca, César, Chocó, Cundinamarca and Valle) and Venezuela, in altitudes below to 2,500 m (Fig. 180).

Biology and phenology. Flies during all year around, although not abundant (DeVries, 1987). It is attracted by rotten fruit traps, and generally is found as solitary individuals inside forest (DeVries 1987; F. Gaviria, *pers. comm.*).

Host plants and immature. Recorded larval host plants includes undetermined species of *Panicum* L. (Poaceae), *Calathea* G. Mey (Marantaceae), *Geonoma* Willd., *Euterpe macrospadix* Oerst., *Iriartea* Ruiz & Pav., *Prestoea acuminata* (Willd.) and *Welfia georgii* H. Wendl. (Arecaceae) (Singer *et al.* 1983; DeVries 1987; Beccaloni *et al.* 2008).

Type material, lectotype designation and taxonomic history. *Euptychia confusa* Staudinger, 1867 was described based on an unstated number of specimens from Chiriqui, Panama, misidentified as *Euptychia myncea* by W. C. Hewitson. One male syntype was found at ZMHU (Fig. 161), and that was correctly designated as the lectotype of *E. confusa* by Singer *et al.* (1983). The female illustrated in Staudinger (1867: pl. 80) agrees with the description of *E. confusa*, although wrongly figured as *E. myncea*. Weymer (1911) treated *E. confusa* as a subspecies of *Euptychia labe*, although a distinct species (here treated as *Genus E pseudoconfusa*) was illustrated under the name *confusa* (pl. 47). Forster (1964) erroneously treated *E. confusa* as synonym of *Argyreuptychia labe* (here treated as *Genus D labe*). Illustration of male genitalia (Forster, 1964: 123, figs 142-143) agrees with that one of *Genus F confusa confusa* (Fig. 166 – note the shorter gnathos with apex curved upwards), and not to *Genus D labe* (Fig. 49 – note well-developed gnathos).

Examined material. 23 males, 26 females (6 specimens dissected). MEXICO – *Yucatán*: 1 female, no data, B. Zimek *leg*., Rothschild Bequest B.M. 1939-1, BMNH(E) 1421181 (NHMUK). NICARAGUA – *Chontales*: 1 male, no data, Janson *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421023 (NHMUK); *Matagalpa*: San Ramón, Coco river, 114 m, 3 females, V.1905, M. G. Palmer *leg*., Rothschild Bequest B.M. 1939-1, BMNH(E) 1419982, BMNH(E) 1419983, BMNH(E) 1419984 (NHMUK). COSTA RICA – *Limón*: Guápiles, 1 male, XI.[no year], no collector, Rothschild Bequest B.M. 1939-1, BMNH(E) 1419986 (NHMUK), 1 male, no data, no collector, Rothschild Bequest B.M. 1939-1, BMNH(E) 1419986 (NHMUK); *Osa Peninsula*: Corcovado, San Pedrillo, 1 male, 14.VI.1980, J. Mallet *leg.*, BMNH(E) 2011-63 aq., BMNH(E) 1421797 (NHMUK), Llorona, 1 male, 4.VIII.1980, J. Mallet *leg.*, BMNH(E) 2011-63 aq., BMNH(E) 1421704 (NHMUK). PANAMA – *Chiriqui*: 2 males, no data, no collector (ZMHU), 1 male, no data, ex-coll. Staudinger (ZMHU), 1 female, no data, Ribbe *leg.* (ZMHU), 1 male, no data, Ribbe *leg*., ex-coll. Staudinger, BMNH(E) 1421054 (NHMUK), Bugaba, 2 males, 4 females, no data, Champion *leg.*, Godman-Salvin Coll. 1904-1, BMNH(E) 1421240*, BMNH(E) 1421116*, BMNH(E) 1421147, BMNH(E) 1421178, BMNH(E) 1421209, BMNH(E) 1421240 (NHMUK), 1 male, no data, no collector, Godman-Salvin Coll. 1904-1, BMNH(E) 1420992 (NHMUK); *Colón*: Lion Hill, 1 male, no data, McLeannan *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421085 (NHMUK); *Gamboa*: Pipeline road, 1 male, 14.IX.2001, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421766 (NHMUK), old Gamboa road, 1 female, 12.IX.2001, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1422013 (NHMUK), 1 female, 25.IX.2001, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421982 (NHMUK), 1 female, 27.IX.2001, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421951 (NHMUK). COLOMBIA – *no specific locality*: 1 female, no data, no

collector, Ex Grose Smith, 1910, BMNH(E) 1421179 (NHMUK); *Bolívar*: San Pablo, Río San Juan, 1 male, 1 female, no data, no collector (ZMHU), 2 males, 2 females, no data, Trotsch. *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421117*, BMNH(E) 1421148, BMNH(E) 1421117, BMNH(E) 1421148 (NHMUK); *Caldas*: Purnio, 280 m, 2 females, X-XI.1896, Dr. Bürger *leg*., Rothschild Bequest B.M. 1939-1, BMNH(E) 1420836*, BMNH(E) 1420836 (NHMUK), Victoria Cuba, 1 male, 25.V.2012, F. Gaviria *leg*., DZ 38.067 (DZUP); *Cauca*: Las Juntas, 1 female, [no month].1897-1898, M. de Mathan *leg*., Ex Oberthür Coll. Brit. Mus. 1927-3, BMNH(E) 1421024 (NHMUK); *César:* Chiriguaná, Lake Sapatoza, 1 male, VIII-IX.1924, C. Allen *leg*., Brit. Mus. 1925-576, BMNH(E) 1421735 (NHMUK); *Chocó*: Acandí, Playa Aguacate, 1 male, no data, no collector, MGCL-LOAN 138 (ZUEC), Condoto, 1 male, 14.XII.1914, H. G. F. Spurrell *leg*., BMNH(E) 1421302 (NHMUK), Nuqui, 1 female, 8.VII.2011, no collector, MGCL-LOAN 140 (ZUEC); *Cundinamarca*: Bogotá, 2 males, [no month].1918, Frere Apollinaire-Marte *leg*., Ex Oberthür Coll. Brit. Mus. 1927-3, BMNH(E) 1421271*, BMNH(E) 1421271 (NHMUK); *Valle*: Dagua, 4 females, no data, W. Rosenberg *leg*., Rothschild Bequest B. M. 1939-1, BMNH(E) 1420805, BMNH(E) 1420867, BMNH(E) 1420898, BMNH(E) 1420960 (NHMUK). VENEZUELA – *no specific locality*: 2 females, no data, Hewitson Coll. 79-69, BMNH(E) 1420935*, BMNH(E) 1420904 (NHMUK).

***Genus F confusa* ssp.1 Zacca, Casagrande & Mielke ssp. n** (Figs 164-165, 177, 180)

Cissia confusa; Raguso & Gloster, 1996: 157. – Racheli & Racheli, 2001: 328.

Cissia sp.1; Piñas-Rubio, 2010: figs 239-240 (male, female).

Diagnosis and description. *Genus F confusa* ssp.1 **ssp. n.** differs from *Genus F confusa confusa* by the following characters: (1) DW ground colour greyish-brown and VW ground colour paler; (2) VHW with ocellus in Sc+R_1-M_1 occupying almost the entire width of cell (ocellus half-length of cell in *Genus F confusa confusa*), (3) ovoid ocelli in M_1-M_2 and CuA_1-CuA_2 with large pupils (elliptical ocelli with tiny pupils in *Genus F confusa confusa*), (4) well-marked pupils in all ocelli (faded pupils in ocelli M_2-CuA_1 in both VFW and VHW in *Genus F confusa confusa*) and (5) lack of any yellowish scaling on VHW (yellowish scaling in submarginal region between M_3-2A in *Genus F confusa confusa*). Male genitalia similar as in *Genus F confusa confusa.*

Variation. VFW might have an additional tiny ocellus in R_{4+5}-M_1.

Distribution. This subspecies is restricted to Ecuador (Bolívar, Cotopaxi, Esmeraldas,

Imbabura, Los Ríos and Pichincha), in altitudes between 670-3000 m (Raguso & Gloster 1996; plus examined material).

Biology and phenology. Flies during all year round. It is common in forest light gaps and has been recorded in baited traps (Raguso & Gloster 1996).

Host plants and immature. Unknown.

Type material. Holotype male with the following labels: /[Imbabura, Ibarra] Paramba, 3500' III.[18]97, dry season, (Rosenberg) [*leg.*]/ Rothschild Bequest B.M.1939-1/ BMNH(E) 1420774/; and two others will be added later: /Holotypus/ Holotypus *Genus F confusa ssp.1* Zacca, Casagrande & Mielke, det. 2016/ NHMUK. The last two labels will be sent to the curator later.

PARATYPES – 27 males, 2 females (4 specimens dissected). ECUADOR – *Bolívar*: Balzapamba, 3 males, IX.1893-II.1894, M. de Mathan *leg*., Ex Oberthür Coll. Brit. Mus. 1927-3, BMNH(E) 1420993, BMNH(E) 1421055, BMNH(E) 1420993, BMNH(E) 1420966 (NHMUK), 2 males, III-IV.1894, M. de Mathan *leg*., Ex Oberthür Coll. Brit. Mus. 1927-3, BMNH(E) 1420873*, BMNH(E) 1421319 (NHMUK), Chimbo, 1 male, VIII.1897, Rosenberg *leg*., Rothschild Bequest B.M. 1939-1, BMNH(E) 1419980 (NHMUK); *Cotopaxi*: Angamarca, 1 male, no data, no collector, Crowley Bequest 1901-78, BMNH(E) 1421086* (NHMUK); *Esmeraldas*: 1 female, no data, Lehmann *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1421103 (NHMUK), 1 male, 8.X.1956, J. Forster *leg*. (ZSBS), 1 male, no data, Lehmann *leg.*, Godman-Salvin Coll. 1904-1, BMNH(E) 1421103* (NHMUK), Cachabí, 1 female, I.1897, Rosenberg *leg*., Rothschild Bequest B.M. 1939-1, BMNH(E) 1419985 (NHMUK); *Imbabura*: Ibarra, Paramba, 1066 m, 1 male, II.1987, Rosenberg *leg*., Rothschild Bequest B.M. 1939-1, BMNH(E) 1419987 (NHMUK), 2 males, III.1897, Rosenberg *leg*., Rothschild Bequest B.M. 1939-1, BMNH(E) 1421212*, BMNH(E) 1421212 (NHMUK), 7 males, IV.1897, Rosenberg *leg*., Rothschild Bequest B.M. 1939-1, BMNH(E) 1420681, BMNH(E) 1420929, BMNH(E) 1420712, BMNH(E) 1420743,

BMNH(E) 1420774, BMNH(E) 1419979, BMNH(E) 1419981 (NHMUK), 1 male, [no month].1898, no collector, Joicey Bequest Brit. Mus. 1934-120, BMNH(E) 1421072 (NHMUK); *Los Ríos*: La Chima, Rio de las Juntas, 2 males, VI-VII.1983, M. de Mathan *leg*., Ex Oberthür Coll. Brit. Mus. 1927-3, BMNH(E) 1421010, BMNH(E) 1421041 (NHMUK); *Pichincha*: Otongachi, 00 19.260'S 078 56.104'W, 817 m, 21.II.2007, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1422170 (NHMUK), 2 males, 22.II.2007, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1422294, BMNH(E) 1422201 (NHMUK), 2 males, 25.II.2007, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1422332, BMNH(E) 1422263 (NHMUK).

***Genus F* sp.1 Zacca, Casagrande & Mielke sp. n.** (Figs 119-120, 133-137, 181)

Diagnosis. This species resembles to *Genus F maripa*, but is easily distinguished by its large size (FW length: 26 mm, in opposite to 21 mm in *Genus F maripa*), VW with yellowish ground colour, VFW with submarginal line smoothly crenulated between CuA_1 and inner margin (well-crenulated in *Genus F maripa*), VHW with median line not reaching submarginal line at tornus, anterior projection of saccus curved upwards and valva with developed dorsal projection at apical third.

Male genitalia (Figs 133-137). Tegumen flattened, laterally subtriangular with anterior region projected; uncus slightly sinuous, basally wide, about 1 ½ length of tegumen, dorsally elliptical, apex pointed dorsal view; gnathos slightly sinuous, broad at base and apex hooked-like, about 2/3 length of uncus; combination of ventral arms of tegumen and dorsal arms of saccus straight, appendix angularis short; anterior projection of saccus developed, longer than gnathos and curved upwards; fultura superior absent; fultura inferior present; valva elongated and trapezoid, covered by long hairy-like setae latero-ventrally and short ones at inner side, costa developed and rectangular, dorsal margin straight with developed serrated dorsal projection at apical third, apex pointed and slightly serrated; aedeagus slightly sinuous, longer than valva, anterior region rounded, posterior region twice longer than anterior region, apex truncated, distal opening ventral longer than proximal opening; cornuti present.

Female. Unknown.

Distribution. So far, this species is only known to the type-locality (Fig. 179).

Biology and phenology. Unknown.

Host plants and immature. Unknown.

Type material. Holotype male with the following labels: /Holotypus/ French Guiana, 20.III.2015, M. Benmesbah *leg.*/ DZ 38.072/ Holotypus *Genus F* sp.1 Zacca, Casagrande & Mielke, det. 2016/ DZUP.

***Genus F* sp.2 Zacca, Casagrande & Mielke sp. n.** (Figs 99-102, 138-142, 157-158, 177, 181)

Diagnosis. This species resembles to *Genus F myncea*, but is easily distinguished by the VW with whitish ground colour and thin irregular submedian and median lines and well-developed ocelli in M_2-M_3 and M_3-CuA_1, uncus twice longer than tegumen and aedeagus with bifid apex.

Description. *Head:* brown, frons mixed with creamy and brown; eyes chocolate brown, densely hairy; post-genal area creamy; labial palpi curved upwards, dorsally with short mixed dark brown, laterally with short creamy scales, ventrally with elongated mixed dark brown and creamy scales at the first and second segments, dark brown short scales at the third segment; antennae brown with apex dark, laterally with white scales on each side of the base of the flagellomeres. *Thorax*: dorsally and ventrally covered by greyish-brown elongated scales and tegulae greenish. *Wings*: FW: male: 23–24 mm (HT: 24 mm), female: 24 mm. DFW and DHW: ground colour whitish; elements of VFW and VHW visible through transparency; fringes brown. VFW: ground colour lighter than the DFW; reddish brown lines, submedian and median lines straight or slightly crenulated, submarginal and marginal lines crenulated, wide umbra from costal margin to 2A; three small ocelli from M_1 to CuA_1. VHW: similar to the VFW, but with five from Rs to CuA_2, each one surrounded by a narrow yellowish ring and with two silvery pupils; ocellus in Rs-M_1 smaller than others (about half the diameter of its neighbour), ocelli M_1-M_2 and CuA_1-CuA_2 equal size and ocelli M_2-M_3 and M_3-CuA_1 with faded ocellar spot.

Male genitalia (Figs 138-142). Tegumen slightly convex, laterally subtriangular with anterior region projected; uncus sinuous, almost same size on its entire length, about twice longer than tegumen, dorsally elliptical, apex pointed dorsal view; gnathos slightly sinuous, broad at base, tapering at apex, about 2/3 length of uncus; combination of ventral arms of tegumen and dorsal arms of saccus slightly sinuous, appendix angularis short; anterior projection of saccus developed, smaller than gnathos and slightly curved upwards; fultura superior absent; fultura inferior present; valva elongated and trapezoid, covered by long hairy-like setae latero-ventrally and short ones at inner side, costa developed and trapezoid, dorsal margin straight with dorsal projection serrated at apical third, apex pointed and slightly serrated; aedeagus slightly arched upwards, as long as valva, anterior region rounded, posterior region 1 ½ length of anterior region, apex bifid, distal opening ventral longer than proximal opening; cornuti absent or not evident.

Female genitalia (Figs 157-158). 8th tergite rectangular; papilla analis sub-triangle, covered by long hairy-like setae at distal region, apophysis posterior reduced; lamella antevaginalis and postvaginalis absent; ductus bursae membranous and about the same length as corpus bursae; corpus bursae with paired signa ventrally.

Variation. Females have FW rounded and VW with median line more crenulated and well-developed ocelli.

Distribution. So far, this species is only known from Brazil (Distrito Federal, Mato Grosso and Espírito Santo). It is sympatric with *Genus F maripa* in Mato Grosso, Brazil (Fig. 181).

Biology and phenology. Flies in January, February, April and September.

Host plants and immature. Unknown.

Type material. Holotype male with the following labels: /Holotypus/ S[ão] Vicente, S[ão] José da Serra, Cuiabá, MT [Mato Grosso, Brazil], 700 m, 24.IV.1972, Mielke & Brown *leg.*/ DZ 38.096/ Holotypus *Genus F* sp.2 Zacca, Casagrande & Mielke, det. 2016/ DZUP.

PARATYPES – 2 males, 1 female (2 specimens dissected). BRAZIL – *Distrito Federal*: Brasília, 1 female, 28.XI.1968, Brown *leg*., DZ 38.069* (DZUP); *Mato Grosso*: Xavantina, 1 male, 14.I.1977, ex-coll. Gifford, DZ 38.095 (DZUP); *Espírito Santo*:

Conceição da Barra, 1 female, 22.II.1974, ex-coll. H. Ebert, DZ 38.097* (DZUP).

***Genus F* sp.3 Zacca, Casagrande & Mielke sp. n.** (Figs 103-106, 143-147, 159-160, 175-176, 177, 181)

Diagnosis. This species resembles to *Genus F myncea* and is related to the "*myncea* complex*"*, but can be distinguished from them by the following: 1) DW dark brown; 2) VW with greyish-brown ground colour; 3) VW with white band (with approximately 0.2 mm) between the median lines and umbra; 4) VFW with no yellowish scaling on submarginal region; 5) VFW median line straight in CuA_2-2A (Fig. 104); 6) appendix angularis short; 7) apex of valva short (Fig. 143).

Description. *Head:* brown, frons mixed with creamy and brown; eyes chocolate brown, densely hairy; post-genal area creamy; labial palpi curved upwards, dorsally with short mixed dark brown, laterally with short creamy scales, ventrally with elongated mixed dark brown and creamy scales at the first and second segments, dark brown short scales at the third segment; antennae brown with apex dark, laterally with white scales on each side of the base of the flagellomeres. *Thorax*: dorsally and ventrally covered by greyish-brown elongated scales and tegulae greenish. *Wings*: FW: male: 23–24 mm (HT: 24 mm), female: 24 mm. DFW and DHW: ground colour whitish; elements of VFW and VHW slightly visible through transparency; fringes brown. VFW: ground colour lighter than the DFW; reddish brown lines, submedian and median lines straight or slightly crenulated, submarginal and marginal lines crenulated, wide umbra from costal margin to 2A; three small ocelli from M_1 to CuA_1. VHW: similar to the VFW, but with five from Rs to CuA_2, each one surrounded by a narrow yellowish ring and with two silvery pupils; ocellus in Rs-M_1 smaller than others (about half the diameter of its neighbour), ocelli M_1-M_2 and CuA_1-CuA_2 equal size and ocelli M_2-M_3 and M_3-CuA_1 with faded ocellar spot.

Male genitalia (Figs 143-147). Tegumen dorsally convex, laterally subtriangular with anterior region well-projected; uncus slightly sinuous, basally wide, about twice longer than tegumen, dorsally elliptical, apex pointed dorsal view; gnathos slightly sinuous with apex curved upwards, about 2/3 the length of uncus; combination of ventral arms of tegumen and dorsal arms of saccus straight; appendix angularis short; anterior projection of saccus developed, smaller than gnathos and curved upwards; fultura superior absent;

fultura inferior present; valva elongated and trapezoid, covered by long hairy-like setae latero-ventrally and short ones at inner side, costa developed and triangular, dorsal margin straight with small dorsal projection at apical third, ventral margin straight, apex pointed, short and slightly serrated; aedeagus straight, as long as valva, anterior region elliptical, posterior region longer than anterior region, apex truncated, distal opening ventral longer than proximal opening; two cornutal patches.

Female genitalia (Figs 159-160). 8th tergite rectangular; papilla analis oblong, covered by long hairy-like setae at distal region, apophysis posterior reduced; lamella antevaginalis and postvaginalis absent; ductus bursae membranous about 1 ½ times longer than corpus bursae; corpus bursae with paired signa ventrally.

Variation. Females can have a faded yellowish-brown scaling on umbra between M_2-CuA_2 in VFW, and a tiny ocellus between 2A and inner margin in VHW.

Distribution. This species occurs in Ecuador (Orellana) and Peru (Chanchamayo, Huánaco, Loreto and Madre de Dios) in altitudes between 150-800 m (Fig. 181). Additional record to Aguas Verdes, San Martín, Peru (David Gael and Kim Garwood, *pers. comm.*).

Biology and phenology. Flies from March to October, being attracted by baited traps (Figs 175-176).

Host plants and immature. Unknown.

Type material. Holotype male with the following labels: /Holotypus/ Peru, Madre de Dios, Tambopata Reserve, 12°50'S 69°17'W, 25.Oct[ober].1991, M. Casagrande *leg.*/ DZ 29.540/ Holotypus *Genus F sp.3* Zacca, Casagrande & Mielke, det. 2016/ DZUP.

PARATYPES – 4 males, 3 females (5 specimens dissected). PERU – *no specific locality*: 1 male, no data, ex-coll. Druce, Godman-Salvin Coll. 1904-1, BMNH(E) 1205388* (NHMUK); *Chanchamayo*: La Merced, 760 m, 1 male, 1 female, V-VI.1903, Watkins & Tomlinson *leg.*, 1904-133, BMNH(E) 1205389, BMNH(E) 1421275* (NHMUK); *Huánuco*: Tingo Maria, Rondos, 650 m, 1 female, 23.VII.1981, Mielke & Casagrande *leg*., DZ 27.966* (DZUP); *Loreto*: Alto Amazonas, Chambireyacú, near to Yurimaguas, 1 male, VI-VIII.1885, M. de Mathan *leg.*, ex-Oberthür Coll. Brits. Mus. 1927-3, BMNH(E) 1205402* (NHMUK). ECUADOR – *Orellana*: Yasuni, Tiputini river, Km 46

on Napo road, 229 m, 00 40.446'S 076 23.860'W, 1 female, 3.III.2007, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421932 (NHMUK), 1 male, 4.III.2007, M. Majerus *leg*., Majerus Coll. BMNH(E) 2009-52, BMNH(E) 1421963* (NHMUK).

***Genus F* sp. 4 Zacca, Casagrande & Mielke sp. n.** (Figs 107-108, 148-152, 177, 181)

Diagnosis. *Genus F* sp.4 is characterized by VW with darker ground colour and light speckled scales, VFW with submarginal line distally rounded (pointed in *Genus F myncea* and *Genus F* sp.2), VHW with asymmetric ocellus M_2-M_3 and valva with well-developed dorsal projection at apical third.

Description. *Head:* brown, frons mixed with creamy and brown; eyes chocolate brown, densely hairy; post-genal area creamy; labial palpi curved upwards, dorsally with short mixed dark brown, laterally with short creamy scales, ventrally with elongated mixed dark brown and creamy scales at the first and second segments, dark brown short scales at the third segment; antennae brown with apex dark, laterally with white scales on each side of the base of the flagellomeres. *Thorax*: dorsally and ventrally covered by greyish-brown elongated scales and tegulae greenish. *Wings*: FW: HT male: 22 mm. DFW and DHW: ground colour brown with light speckled scales; elements of VFW and VHW not visible through transparency; fringes brown. VFW: ground colour lighter than the DFW; reddish brown lines, submedian and median lines straight, submarginal line crenulated and distally pointed, marginal line straight, wide umbra from costal margin to 2A; three small ocelli from M_1 to CuA_1, first ocellus larger than the others. VHW: similar to VFW, but with five ocelli from Rs to CuA_2, each one surrounded by a narrow yellowish ring and with two silvery pupils; ocellus in Rs-M_1 smaller than others, ocelli M_1-M_2 and CuA_1-CuA_2 equal size, ocelli M_1-M_2 and M_2-M_3 with faded ocellar spot, and ocellus M_2-M_3 asymmetric.

Male genitalia (Figs 148-152). Tegumen dorsally flattened, laterally subtriangular with anterior region projected; uncus sinuous, wide at basal third, about 1 ½ longer than tegumen, dorsally elliptical, apex dorsally pointed; gnathos sinuous with apex curved upwards, about half-length of uncus; combination of ventral arms of tegumen and dorsal arms of saccus angulated; appendix angularis developed; anterior projection of saccus developed, as long as gnathos and curved upwards; fultura superior absent; fultura

inferior present; valva elongated and trapezoid, covered by long hairy-like setae latero-ventrally and short ones at inner side, costa developed and triangular, dorsal margin straight with developed dorsal projection at apical third, ventral margin slightly projected at median region, apex pointed and slightly serrated; aedeagus straight, about the same length as valva, anterior region rounded, posterior region longer than anterior region, apex truncated, distal opening ventral longer than proximal opening; two cornutal patches.

Female. Unknown.

Distribution. So far, this species is only known from the type locality, Serra do Divisor, Acre, Brazil, but it is very probably it also occurs in Peru (Fig. 181).

Biology and phenology. Flies in June, but might occurs in other months. Other aspects are unknown.

Host plants and immature. Unknown.

Type material. Holotype male with the following labels: /Holotypus/ 20-27-VI-2013 Rio Moa, P[ar]q[ue] Nac[ional] Serra do Divisor (Sede), Mâncio Lima, Acre, Brasil. Mielke, Casagrande, Carneiro, Dias & Dolibaina *leg.* 7°26'52"S 73°39'55"W/ DZ 29.594/ BC-DZ Willmott 184/ Holotypus *Genus F* sp.4 Zacca, Casagrande & Mielke, det. 2016/. DZUP.

Transference of *Euptychia cleophes* Godman & Salvin, 1889 to *Megisto* Hübner, [1819]

In order to review all species previously treated in *Cissia* and not placed in the new genera above described, *Euptychia cleophes* Godman & Salvin, 1889 is revised below.

Megisto cleophes (Godman & Salvin, 1889) (Figs 182-194) comb. n.

Euptychia cleophes Godman & Salvin, 1889: 352; syntype: [Mexico], Tierra Colorada and Dos Caminos. Lectotype here designated: [Mexico, Guerrero], Dos Caminos; NHMUK (examined); Godman, 1901 *in* Godman & Salvin: 653, pl. 107, figs 3-4 (female). – Weymer, 1911: 201. – Gaede, 1931: 443. – D'Abrera, 1988: 761 (male, female).

Cissia cleophes; Llorente-Bousquets *et al*., 1995: 45. – Luis-Martínez *et al*., 1995: 119. – Luis-Martínez *et al*., 2003: 221. – Lamas, 2004: 218. – Michán *et al*., 2005: 130. – Llorente-Bousquets *et al*., 2006: 973. – Luis-Martínez *et al*., 2011: 23.

Diagnosis and discussion. This species is characterized by (1) DW with two developed dark ocelli circled by yellowish ring and bipupilated, one subapical in M_1-M_2 in DFW, and the other in CuA_1-CuA_2 in DHW; (2) VW with paler region between median line and the outer margin; (3) VW with brownish-yellow submedian and median lines straight, dark brown submarginal line strongly crenulated and marginal line slightly crenulated. *Megisto cleophes* resembles to *Genus D palladia* and *Genus D labe*, but is easily distinguished from *Genus D labe* by the subapical ocellus in M_1-M_2 in DFW, and to both species by the non-dilated marginal line at tornus in VHW. *Megisto cleophes* can also be confused to its sympatric *Megisto rubricata pseudocleophes* Miller, 1976, but is readily distinguished of that by the ochre patch on DFW (reddish in *M. rubricata pseudocleophes*), VFW with submedian line (absent in *M. rubricata pseudocleophes*) and VHW with submarginal line distally rounded (pointed in *M. rubricata pseudocleophes*).

Male genitalia (Figs 187-191). Tegumen dorsally convex, laterally subtriangular; uncus arched downwards, about 1 ½ longer than tegumen, dorsally ovoid, apex truncated in dorsal view; gnathos laterally sinuous, curved upwards, 2/3 the length of uncus, larger at base and tapering at apex (Fig. 187); combination of ventral arm of tegumen and dorsal arm of saccus sinuous; appendix angularis developed, wider at base with apex curved downwards; anterior projection of saccus short, laterally lanceolated, and smaller than gnathos; fultura superior absent; fultura inferior present; valva elongated, covered by long hairy-like setae latero-ventrally, and short ones at inner side, costa well-developed and rectangular, dorsal margin sinuous, with dorsal projection at apical third of valva, ventral margin concave at median region, apex pointed, dorsally with wide spiny projection (Fig. 188); aedeagus straight, shorter than valva, cylindrical, anterior region bottled-shape, posterior region about 1 ½ longer than anterior region with bifid apex (Fig. 190), distal opening ventral and longer than proximal opening; cornuti absent.

Female genitalia (Figs 192-193). 8^{th} tergite rectangular; papilla analis somewhat oblong covered by long hairy-like setae at distal region, apophysis posterior absent; lamellae antevaginalis half-orbicular (Fig. 193); ductus bursae membranous; corpus bursae longer than ductus bursae, with paired signa ventrally.

Variation. Females have a yellowish-ochre patch in submarginal region between M_2-CuA_1 in DFW. Male have a dark androconial patch in DFW from basal region to the median line between M_2 and inner margin, and no pupils in ventral ocelli in both VW.

Distribution. This species occurs in Central America, and it is apparently endemic to Mexico (Luis-Martínez *et al*. 2003; Michán *et al*. 2005; plus examined material) (Fig. 194).

Biology and phenology. There is only a few records indicating that *M. cleophes* flies in March and October.

Host plants and immature stages. Unknown; although *M. cymela* and *M. rubricata* has been record feeding on *Xyris* L. (Poales, Xyridaceae) (Tietz 1972; Ferris & Brown 1981; Ackery 1988).

Type material, lectotype designation and taxonomic history. *Euptychia cleophes* Godman & Salvin, 1889 was described based on at least one male and one female from Tierra Colorada and Dos Caminos, Mexico. Two female syntypes from Tierra Colorada were found at NHMUK, and one of them is herein designated as the lectotype of *E. cleophes* to fix the identity of the species (Fig. 182); this specimen has the following labels: /Type / Type of species/ *E[uptychia] cleophes* type ♀/ B. M. Type No Rh 3144 *Euptychia cleophes* ♀ G[odman] & S[alvin]/ ♀/ Dos Caminos, Guerrero, 2700 ft. [822 m], Sept[ember], H. H. Smith/ Godman-Salvin Coll. 1904.–1. B[iologia] C[entrali] A[mericana] Lep[idoptera] Rhop[alocera] *Euptychia cleophes* G[odman] & S[alvin]/ Sp. figured/ BMNH(E) 1267115/; and two others labels will be added later: /Lectotypus/ Lectotypus *Euptychia cleophes* Godman & Salvin, 1889. T. Zacca det. 2016/. NHMUK. The last two labels will be sent to the curator later. Another female specimen found at NHMUK from Acaguizotla, also from the Smith's collection, is not part of the type series, as mentioned by Godman (1901). At the same work, Godman also affirms that specimens of *Euptychia themis* were mixed up in the type series of *E. cleophes*; that could explain the absence of any male syntype of *E. cleophes* at NHMUK.

Remarks. Based on the wings pattern coloration, Godman & Salvin (1889) and Godman (1901) suggested that *E. cleophes* was closely allied to *E. myncea* and *E. labe*. *Euptychia cleophes* was transferred to *Cissia* by Singer *et al*. (1983) based on morphological features of adults (although they had not made explicit which diagnostic characters were used)

and immatures. Here, the decision of transferring this species to *Megisto* is based on the morphological similarities between wing patterns, male and female genitalia of this species with *M. cymela* (Cramer, 1777) (see illustrations in Miller 1976: 6, figs 7-12) and *M. rubricata* (Edwards, 1871) (see illustrations in Miller 1976: 12, figs 21-25), such as the bipupilated ocelli in both dorsal and ventral wings, well-developed gnathos curved upwards, valva elongated with apex pointed, aedeagus bifid at posterior region and lamella antevaginalis developed.

Examined material. 3 males and 3 females (2 specimens dissected). MEXICO – *Guerrero*: 3 males, III.1912, Pres. by Prof. M. Draudt, Joicey Bequest Brits. Mus. 1934-120, BMNH(E) 1420651, BMNH(E) 1420652*, BMNH(E) 1420653 (NHMUK); Acaguizotla, 1066 m, 1 female, X.[no year], H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420654 (NHMUK); Tierra Colorada, 610 m, 2 females, X.[no year], H. H. Smith *leg*., Godman-Salvin Coll. 1904-1, BMNH(E) 1420655*, BMNH(E) 1420656 (NHMUK).

Discussion

The genus *Vareuptychia* is revalidated and it now contains two species: *V. similis* and *V. themis*, being mostly differentiated by wing phenotype and male genitalia. No differences in female genitalia was observed in both species, an atypical pattern considering the remaining genera of Euptychiina that shows valuable interspecific variations (e.g.: presence/absence of lamella antevaginalis and/ or lamella postvaginalis, presence/absence of signa and presence/absence of posterior apophysis of papilla analis). However, as female genitalia has only recently being used in taxonomy of Euptychiina, more studies are still necessary to determine if species that has recently evolve tend to have a most homogeneous genitalia morphology or not. This situation was also documented for both male and female genitalia of "*terrestris* group" in *Paryphthimoides* (see discussion in Chapter 1).

Genus D occurs in forested areas from Mexico to South America (except in Bolivia, Chile, Paraguay, Uruguay and Argentina), and species of this genus are easy identified by the broad marginal line at tornus in VHW, in addition to the well-developed gnathos arched upwards and uncus arched downwards. Although with same distributional range, *Genus E* comprises only two species, *Genus D pseudoconfusa* and *Genus D joyceae*, with the later being very rare in collections. In spite of the low number of

specimens known to *Genus D joyceae*, differences in male genitalia morphology allows to consider it as a distinct species rather than a variation of *Genus D pseudoconfusa*.

Genus F comprises seven species, and it is widely distributed from Mexico to South America (except in Bolivia, Chile, Paraguay, Uruguay and Argentina). Morphologically, species of *Genus F* are more closely allied to *Genus E*. Among the species of *Genus F*, *Genus F confusa* is the only occurring in Central America and extending its limits to Colombia (*Genus F confusa confusa*) and Ecuador (*Genus F confusa* ssp.1) in Trans-Andean distribution. This species seems likely replaced by *Genus F myncea* in Cis-Andean distribution. *Genus F maripa* and *Genus F* sp.1 are restrict to South America with records only to French Guiana and Brazil, being the later apparently endemic of French Guiana. The "*myncea* group*"* comprises four species phenotypically similar to each other, although male and female genitalia (when known) be useful to distinguished them together with a few characters of wing element. In addition to that, species of "*myncea* group" can also be sympatric and even syntopic (e.g.: *Genus F myncea* and *Genus F* sp.2 in Mato Grosso, Brazil, and *Genus F myncea* and *Genus F* sp.4 in Acre, Brazil) in some localities which can brings some difficult to differentiate these species only by external characters. Undoubtedly, studies using DNA barcoding will contribute to find more cryptic species in this complex, especially in the Amazonian region.

For long, *Megisto* was considered a genus exclusively of the Nearctic region, but the transference of *Euptychia cleophes* to this genus now extends its limits to the Neotropical region. *Megisto* is sister to the Oriental *Palaeonympha opalina*, and molecular evidence has estimated the split of both genera from the remaining South American Euptychiina genera (except *Euptychia* Hübner, 1818 – see Peña *et al.* 2006, 2010) in early Miocene (Peña *et al.* 2010).

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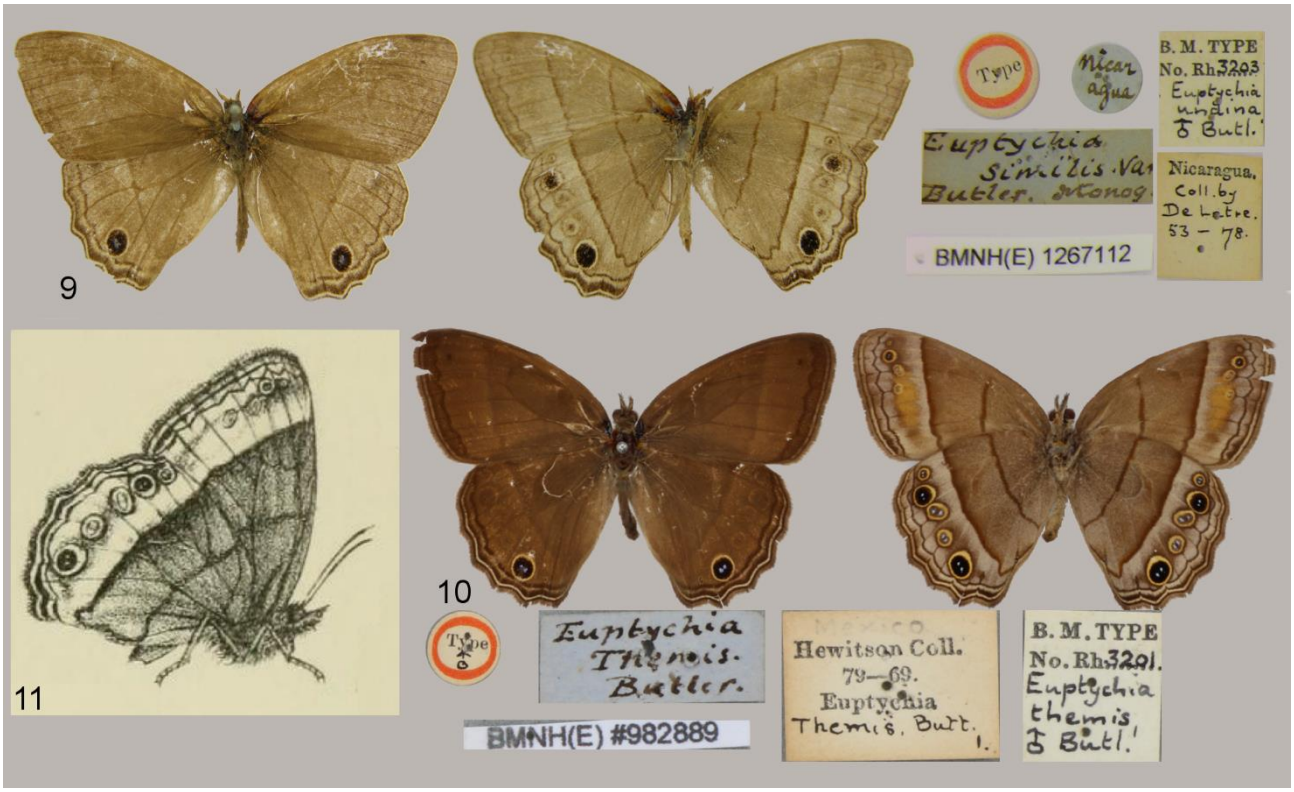
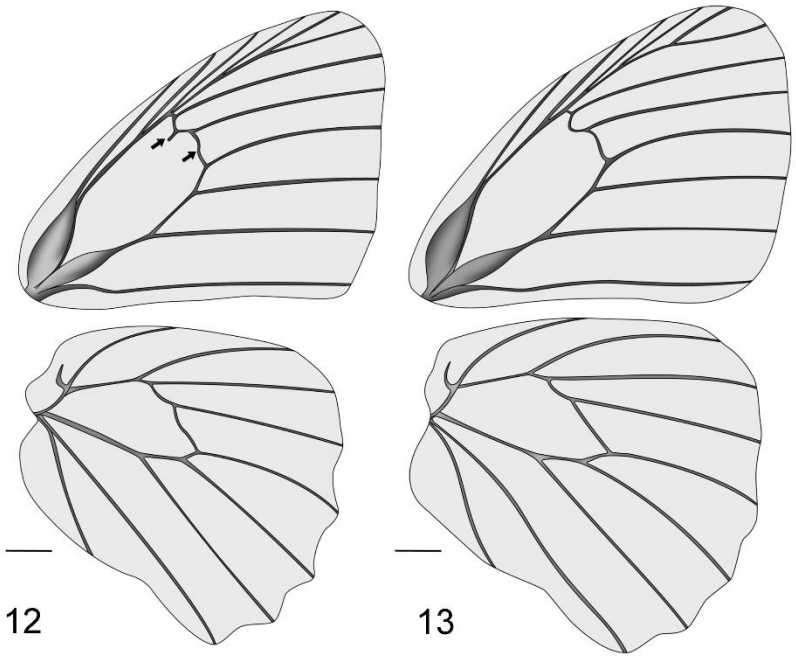
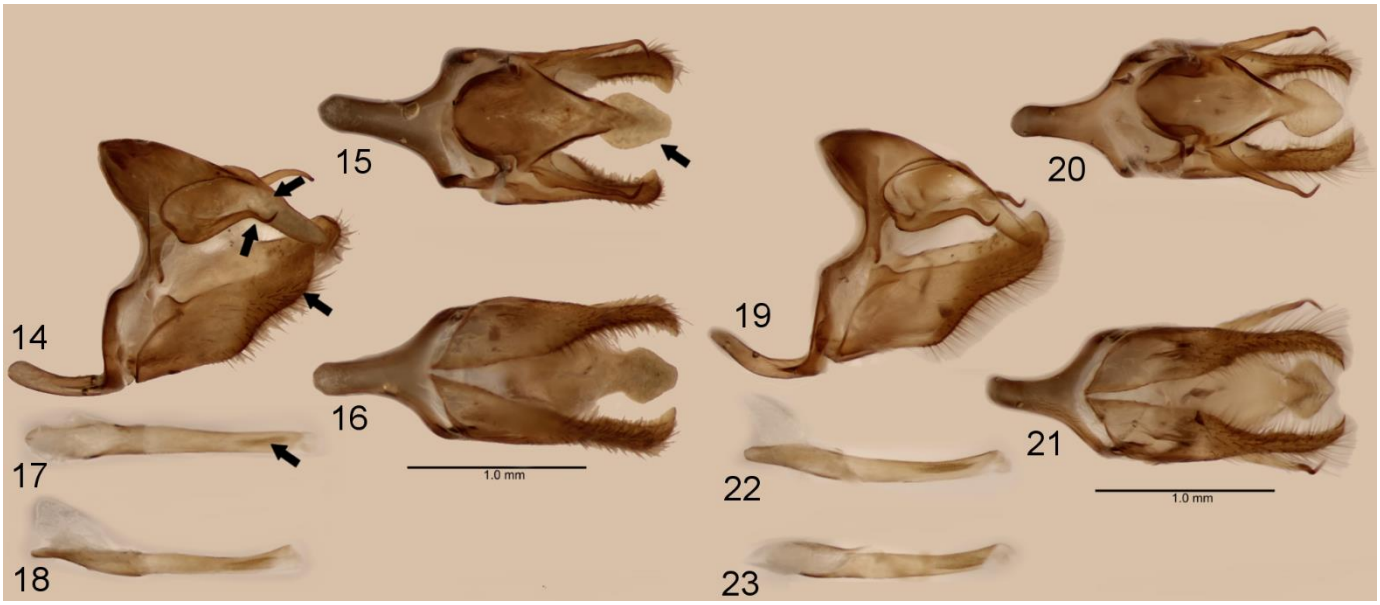
Figures 1-8. Species of *Vareuptychia*. 1-4. *Vareuptychia similis*: 1. Male, dorsal (Guerrero, Mexico); 2. Male, ventral; 3. Female, dorsal (San Jerónimo, Guatemala); 4. Female, ventral. 5-8. *Vareuptychia themis*: 5. Male, dorsal (San Mateo, Costa Rica); 6. Male, ventral; 7. Female, dorsal (Ilopango, El Salvador); 8. Female, ventral. Scale = 1 cm. © Trustees of the Natural History Museum, London.



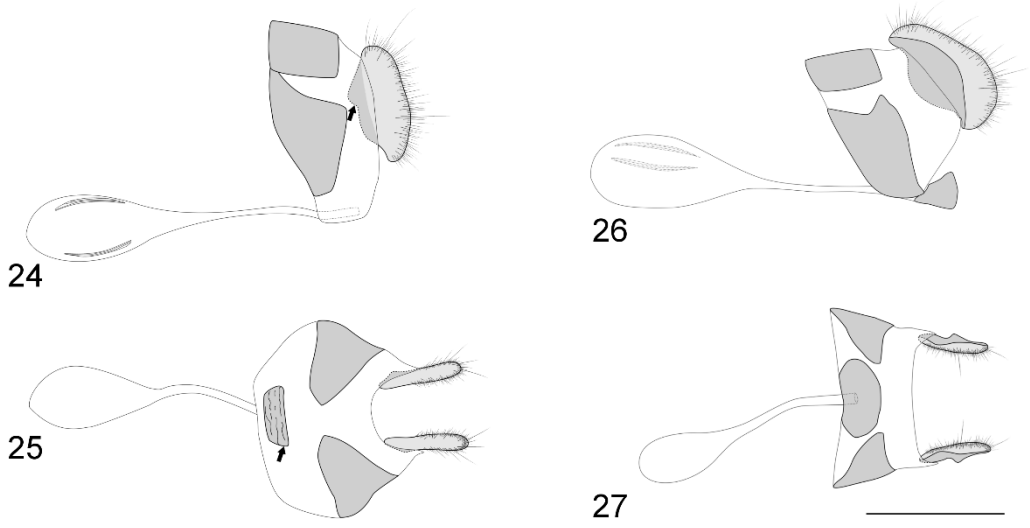
Figures 9-11. Lectotypes and original illustration of species of *Vareuptychia*. 9. Lectotype of *Euptychia similis* Butler, 1867 and labels; 10. Lectotype of *Euptychia themis* Butler, 1870 and labels; 11. Original illustration of *Euptychia themis*. [Photos 9–10: B. Huertas, Trustees of the Natural History Museum, London].



Figures 12-13. Wing venation of *Vareuptychia themis.* 12. Male; 13. Female. Scale = 2 mm. Setae indicates remarkable features among the species of the genus.



Figures 14-23. Male genitalia of species of *Vareuptychia*. 14-18. *Vareuptychia similis*: 14. Lateral; 15. Dorsal; 16. Ventral; 17. Aedeago, dorsal; 18. Aedeago, lateral. 19-23. *Vareuptychia themis*: 19. Lateral; 20. Dorsal; 21. Ventral; 22. Aedeago, dorsal; 23. Aedeago, lateral. Scale = 1 mm. © Trustees of the Natural History Museum, London. Setae indicates remarkable features among the species of the genus.



Figures 24-27. Female genitalia of species of *Vareuptychia*. 24-25. *Vareuptychia similis*: 24. Lateral; 25. Ventral. 26-27. *Vareuptychia themis*: 26. Lateral; 27. Ventral. Scale = 1 mm. Setae indicates remarkable features among the species of the genus.

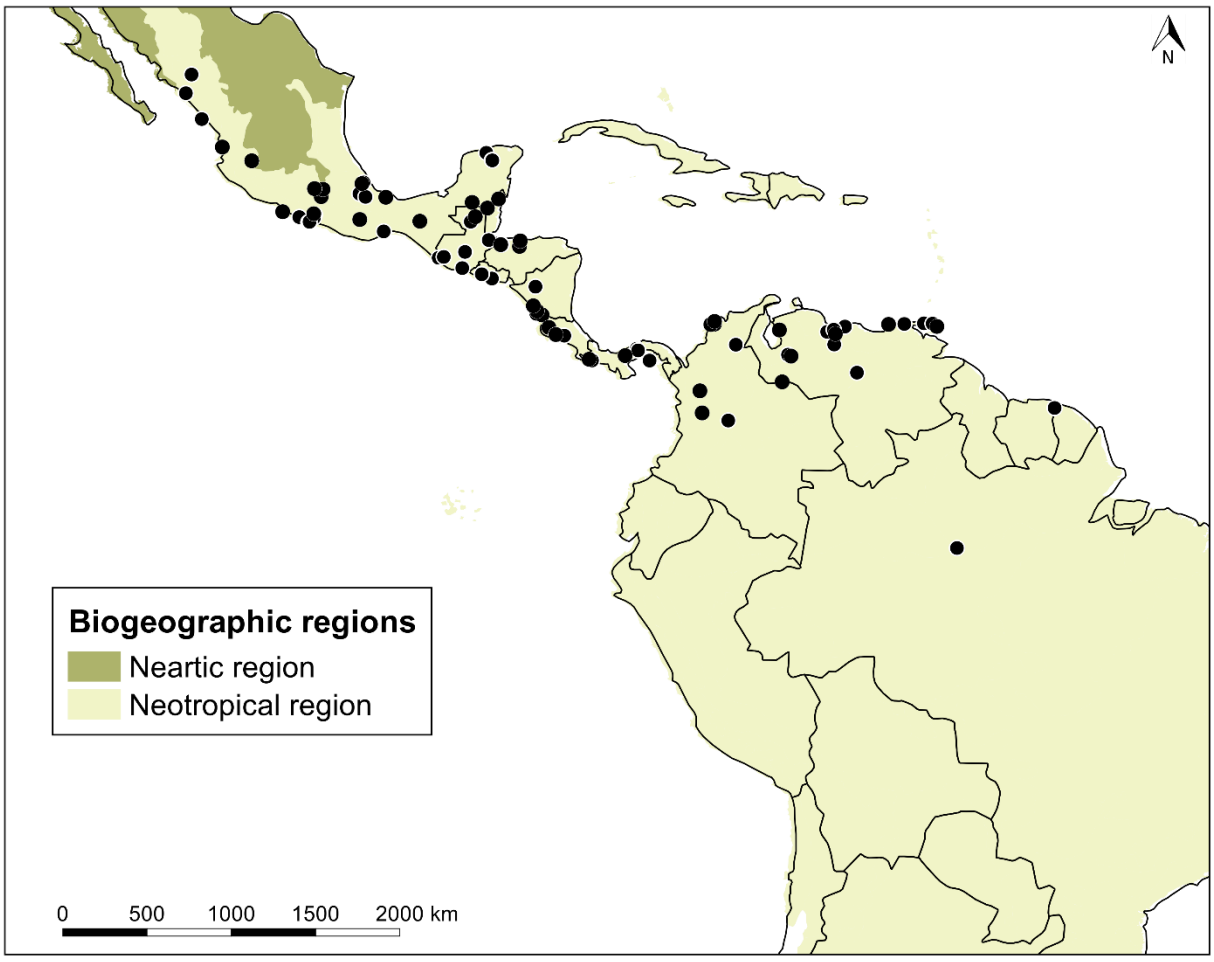


Figure 28. Geographical distribution of *Vareuptychia.*

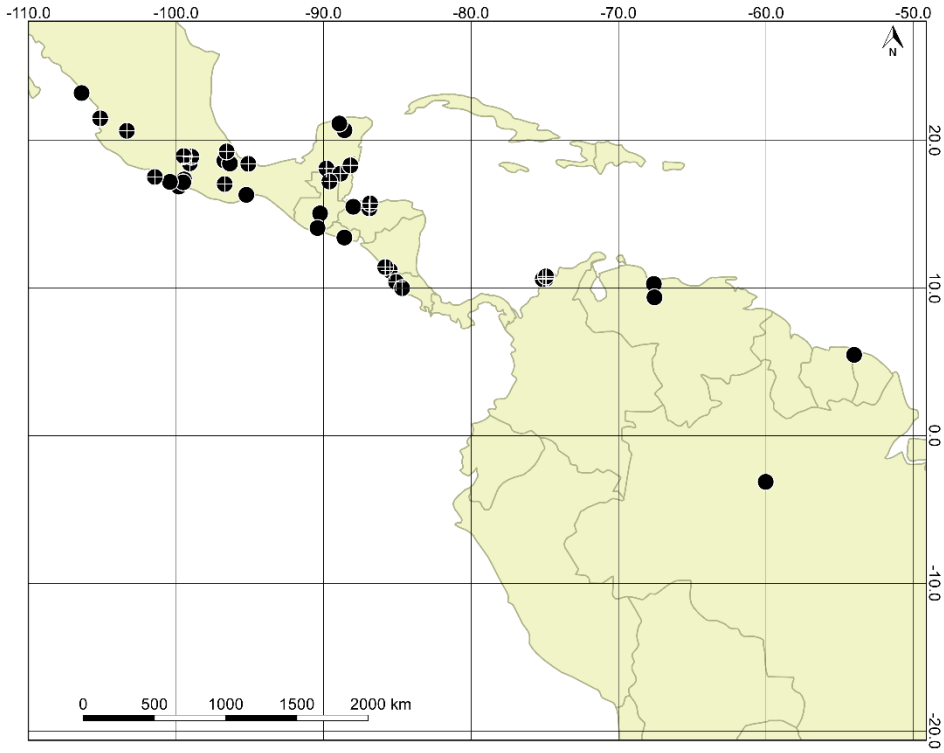


Figure 29. Geographical distribution of *Vareuptychia similis*. White cross indicates literature records.

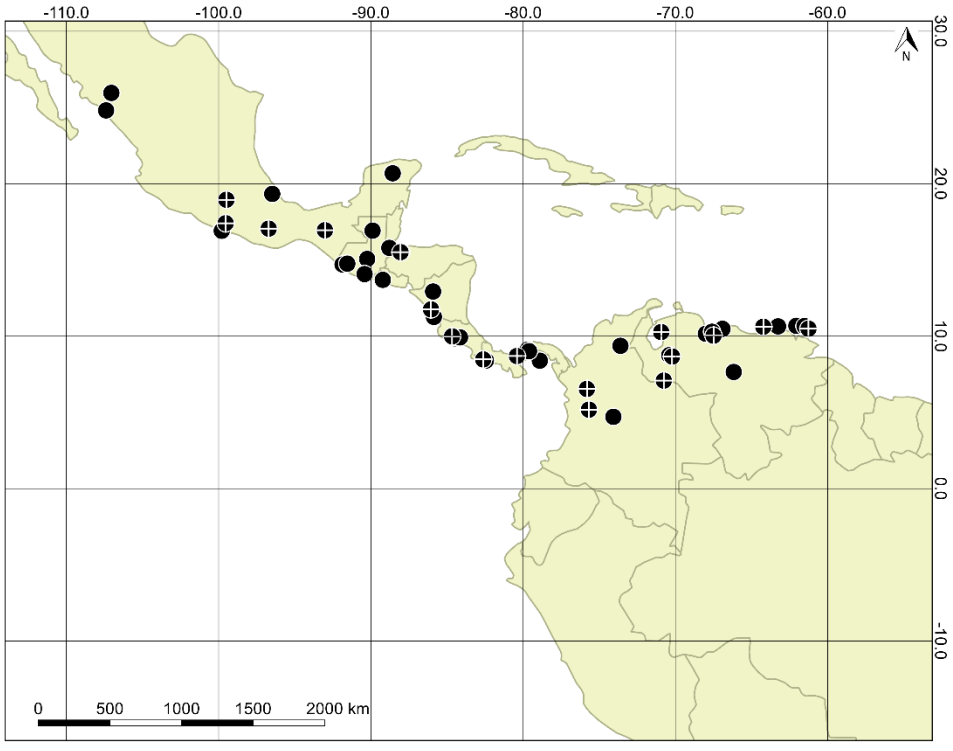
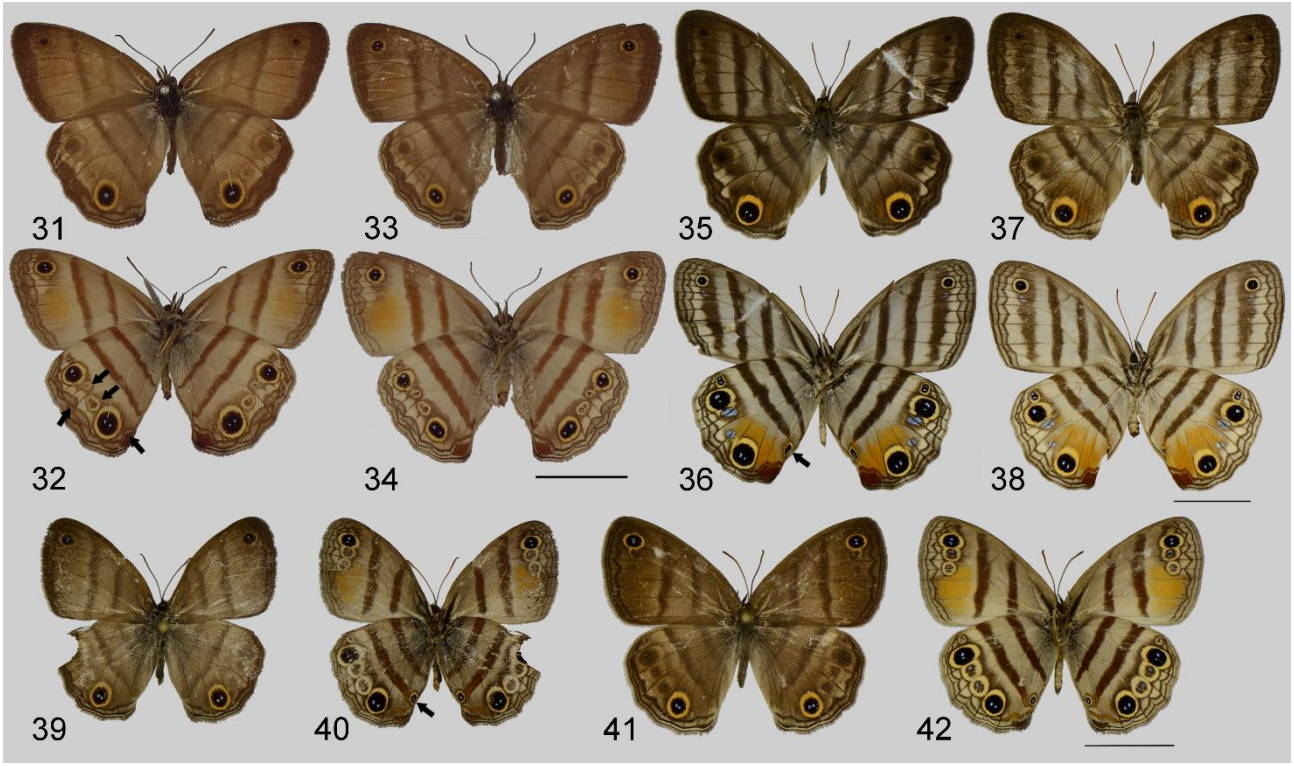


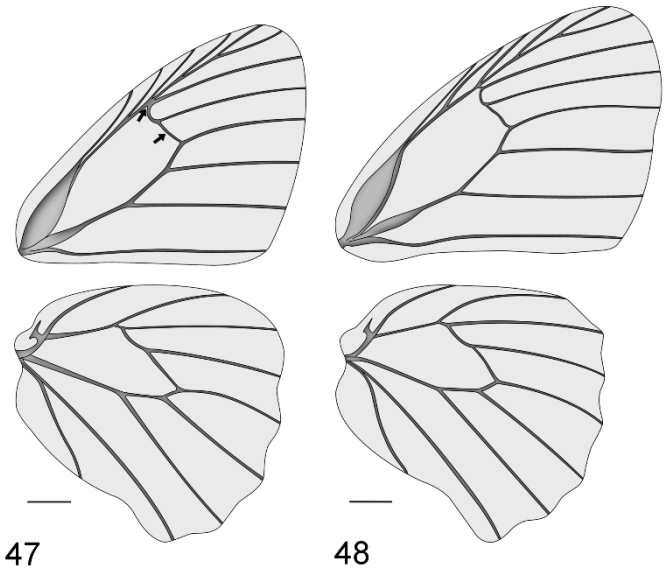
Figure 30. Geographical distribution of *Vareuptychia themis*. White cross indicates literature records.



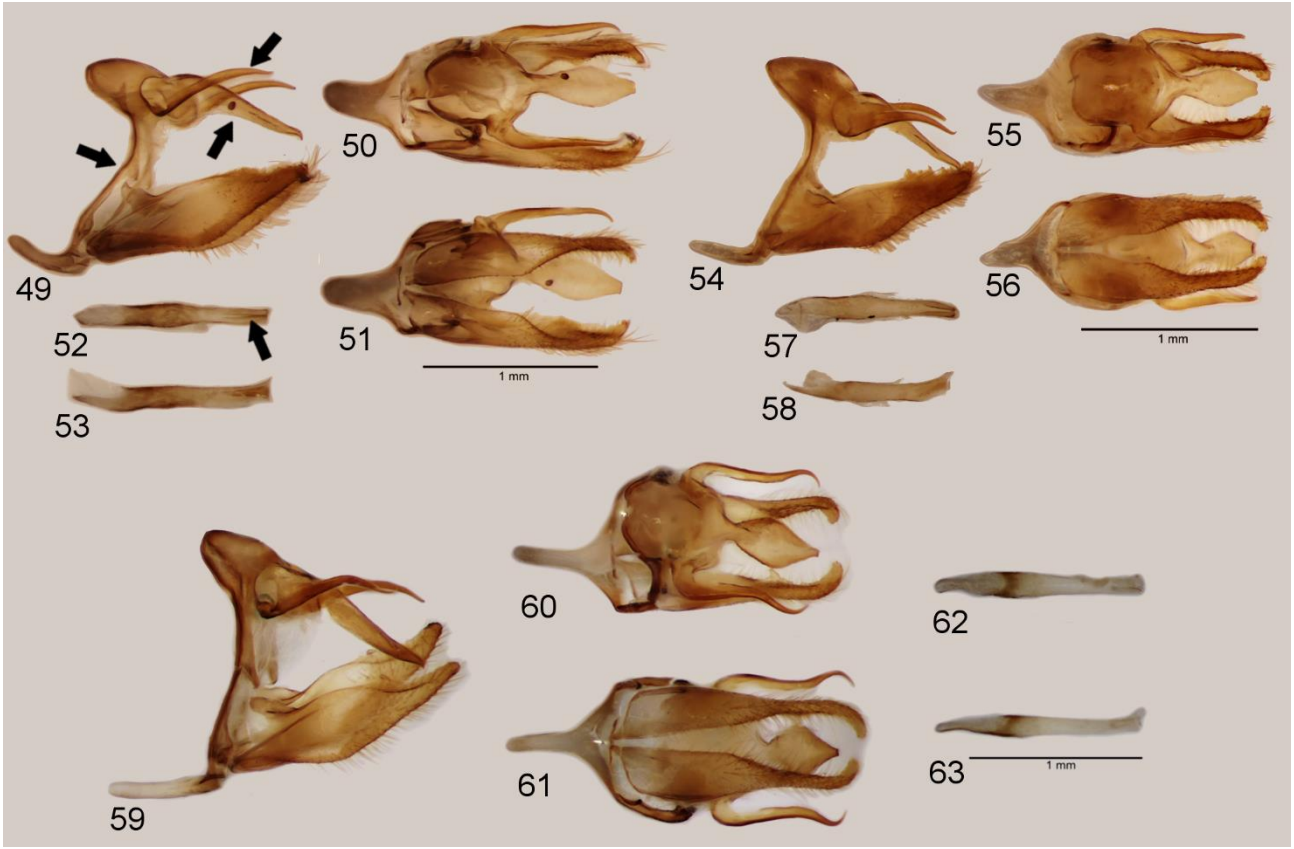
Figures 31-42. Species of *Genus D.* 31-34. *Genus D labe*: 31. Male, dorsal (Chiriqui, Panama); 32. Male, ventral; 33. Female, dorsal (Verapaz, Mexico); 34. Female, ventral. 35-38. *Genus D lesbia*: 35. Male, dorsal (Amazonas, Brazil); 36. Male, ventral; 37. Female, dorsal (Amazonas, Brazil); 38. Female, ventral. 39-42. *Genus D palladia*: 39. Male, dorsal (Acre, Brazil); 40. Male, ventral; 41. Female, dorsal (Acre, Brazil); 42. Female, ventral Scale = 1 cm. [Photos 31-34: © Trustees of the Natural History Museum, London]. Setae indicates remarkable features among the species of the genus.

Figure 43. *Genus D labe* in situ (Parque Nacional Natura Tatama, Colombia). [Photo: Michelle Tatiana Tapasco]

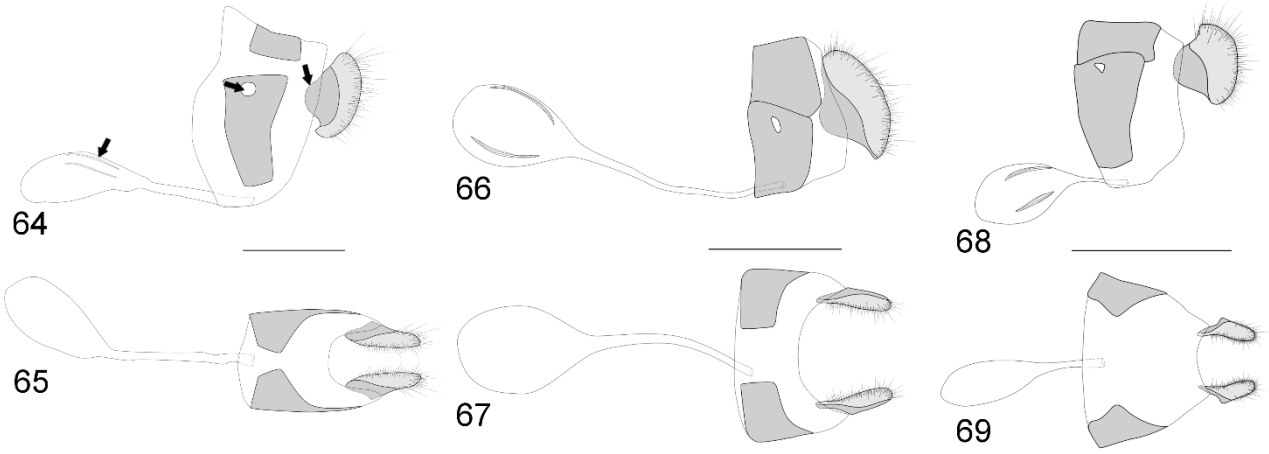
Figures 44-46. Lectotypes of species of *Genus D.* 44. Lectotype of *Euptychia labe* Butler, 1870 and labels; 45. Lectotype of *Euptychia lesbia* Staudinger, [1886] and labels; 46. Lectotype of *Euptychia palladia* Butler, 1867 and labels. [Photos: B. Huertas, Trustees of the Natural History Museum, London].



Figures 47-48. Wing venation of *Genus D palladia*: 47. Male; 48. Female. Scale = 2 mm. Setae indicates remarkable features among the species of the genus.



Figures 49-63. Male genitalia of species of *Genus D*. 49-53. *Genus D labe*: 49. Lateral; 50. Dorsal; 51. Ventral; 52. Aedeago, dorsal; 53. Aedeago, lateral. 54-58. *Genus D lesbia*: 54. Lateral; 55. Dorsal; 56. Ventral; 57. Aedeago, dorsal; 58. Aedeago, lateral. 59-63. *Genus D palladia*: 59. Lateral; 60. Dorsal; 61. Ventral; 62. Aedeago, dorsal; 63. Aedeago, lateral. Scale = 1 mm. Setae indicates remarkable features among the species of the genus.



Figures 64-69. Female genitalia of species of *Genus D*. 64-65. *Genus D labe*: 64. Lateral; 65. Ventral. 66-67. *Genus D lesbia*: 66. Lateral; 67. Ventral. 68-69. *Genus D palladia*: 68. Lateral; 69. Ventral. Scale = 1 mm. Setae indicates remarkable features among the species of the genus.

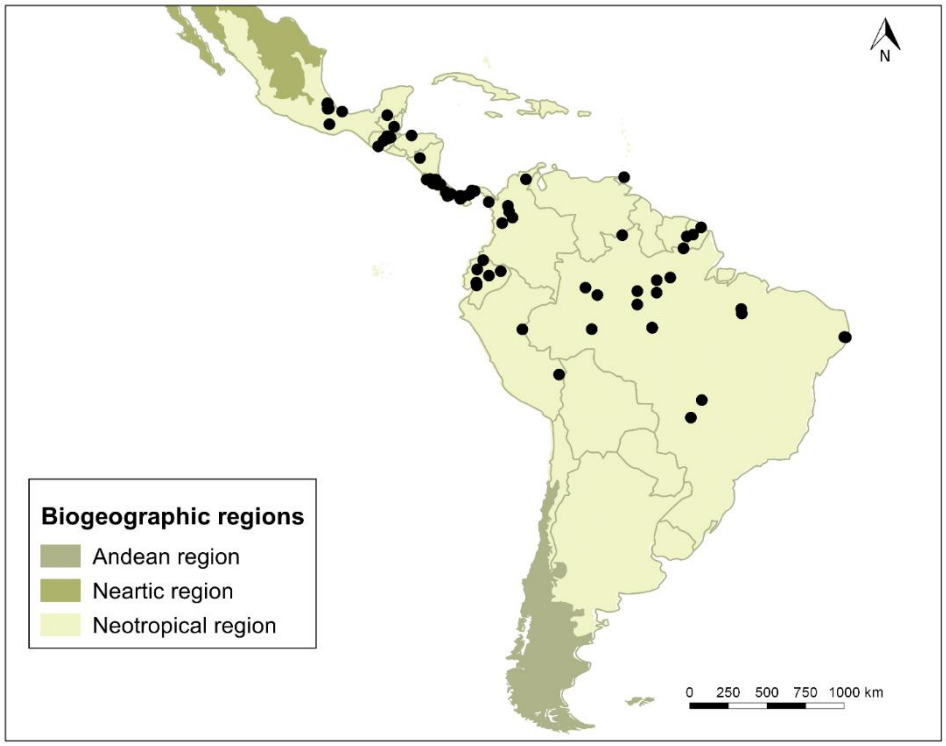


Figure 70. Geographical distribution of *Genus D.*

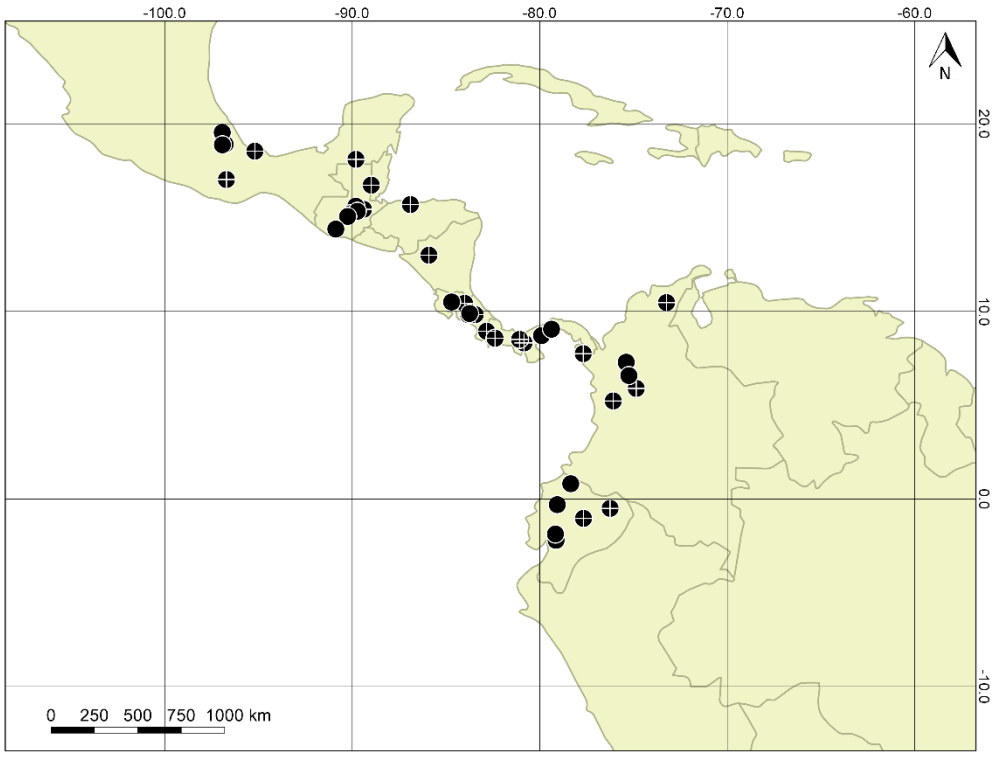


Figure 71. Geographical distribution of *Genus D labe.* White cross indicates literature records.

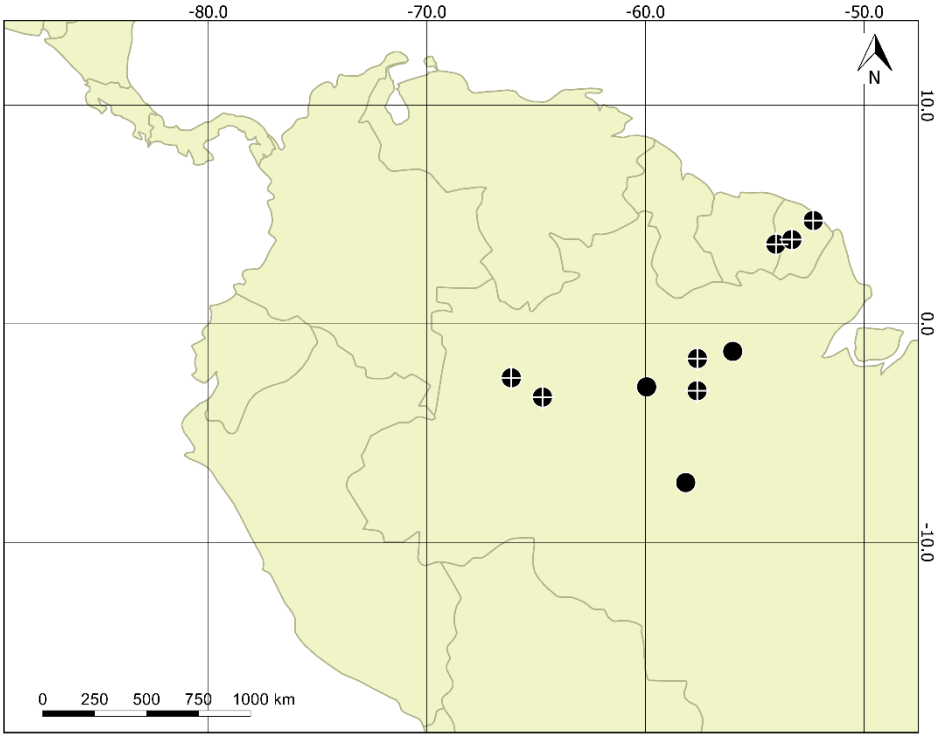


Figure 72. Geographical distribution of *Genus D lesbia.* White cross indicates literature records.

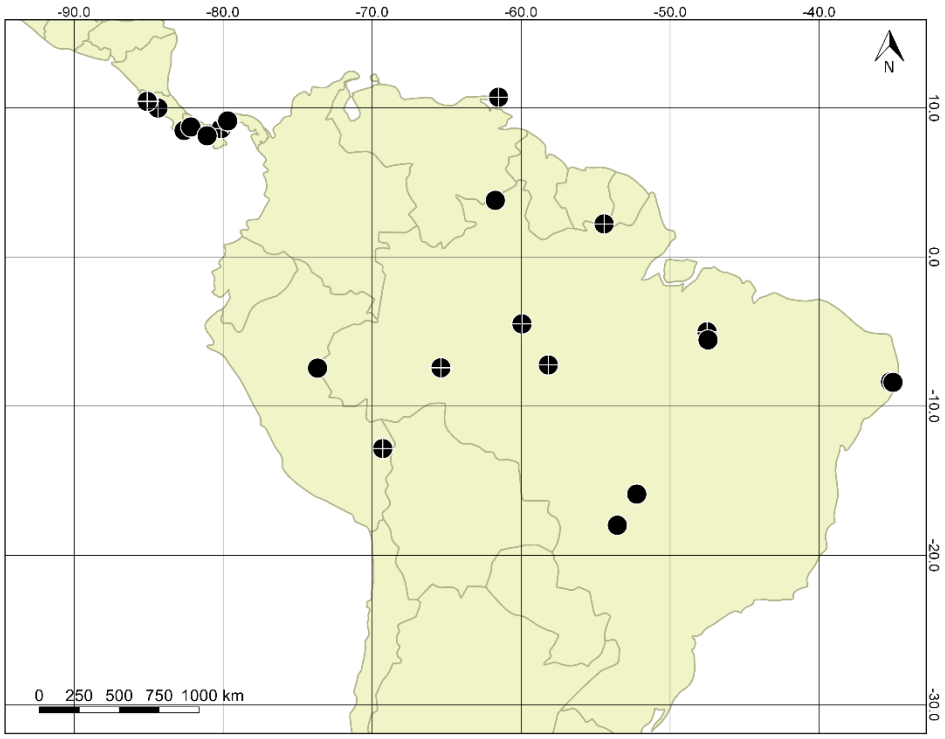
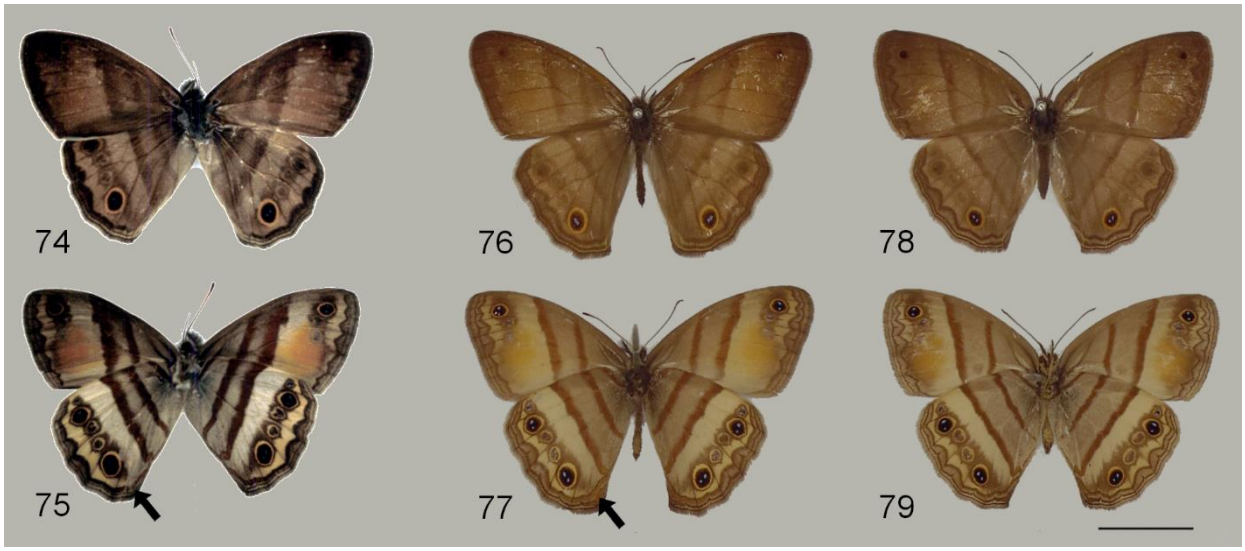
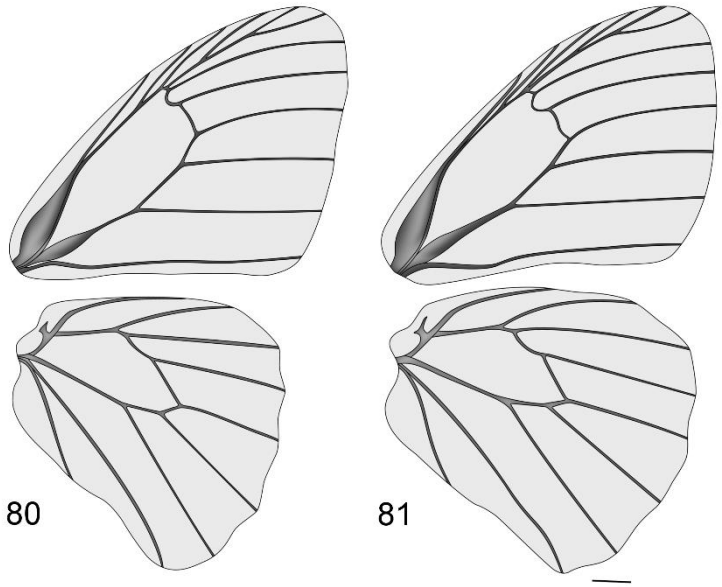


Figure 73. Geographical distribution of *Genus D palladia.* White cross indicates literature records.



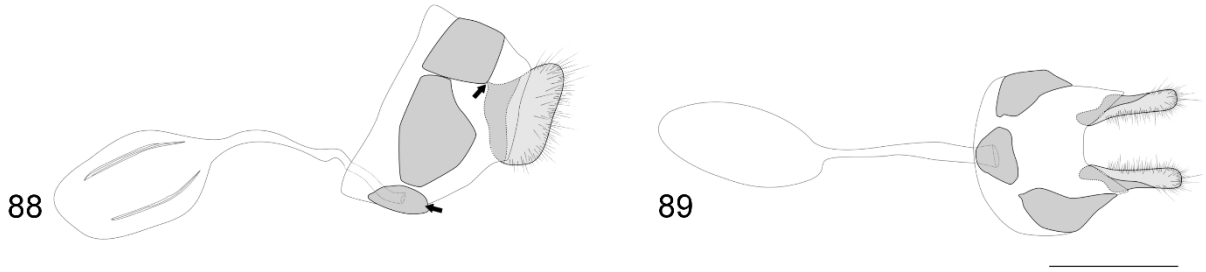
Figures 74-79. Species of *Genus E*. 74-75. *Genus E joyceae*: 74. Holotype male, dorsal; 75. Holotype male, ventral; 76-79. *Genus E pseudoconfusa*: 76. Male, dorsal (Caché, Costa Rica); 77. Male, ventral; 78. Female, dorsal (Tabasco, Mexico); 79. Female, ventral. Scale = 1 cm. © Trustees of the Natural History Museum, London.



Figures 80-81. Wing venation of *Genus E pseudoconfusa*. 80. Male; 81. Female. Scale = 2 mm.

Figure 82. *Genus E pseudoconfusa* in situ (San Jeronimo, Colombia). [Photo: Juan Guillermo Jaramillo]

Figures 83-87. Male genitalia of *Genus E pseudoconfusa*: 83. Lateral; 84. Dorsal; 85. Ventral; 86. Aedeago, dorsal; 87. Aedeago, lateral. Scale = 1 mm. © Trustees of the Natural History Museum, London. Setae indicates remarkable features among the species of the genus.



Figures 88-89. Female genitalia of *Genus E pseudoconfusa*: 88. Lateral; 89. Ventral. Scale = 1 mm. Setae indicates remarkable features among the species of the genus.

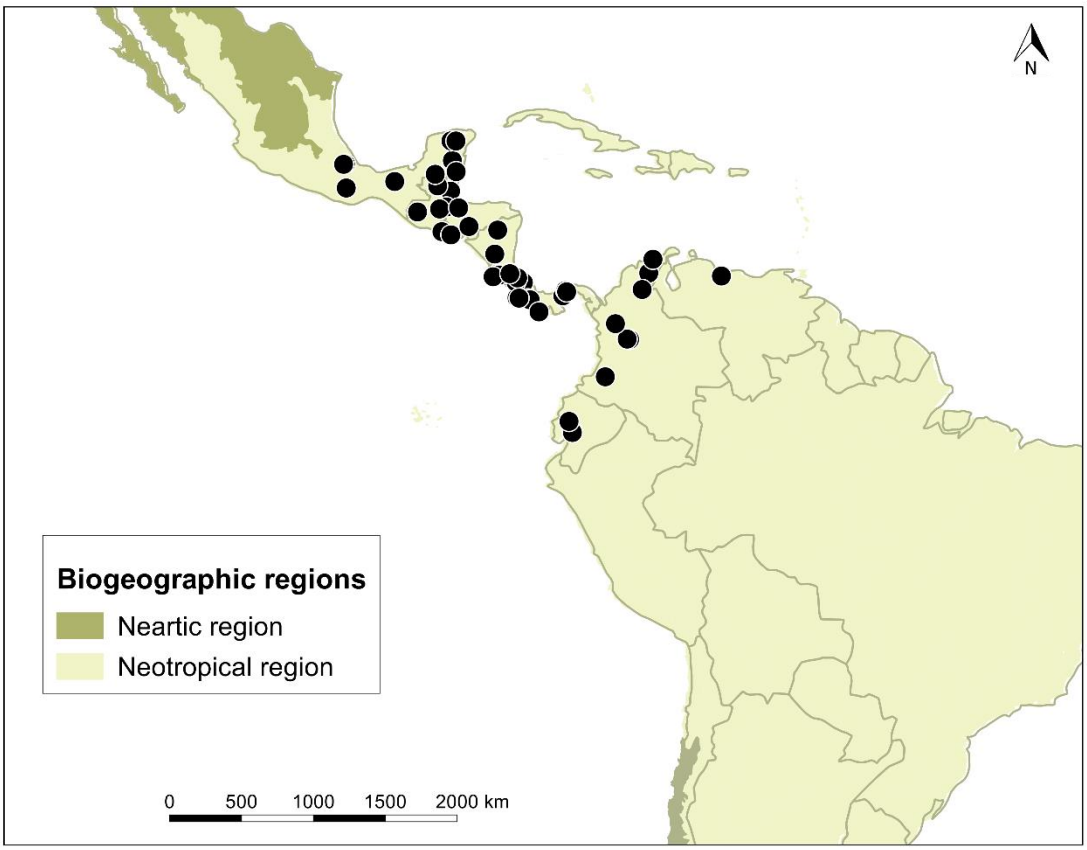


Figure 90. Geographical distribution of *Genus E.*

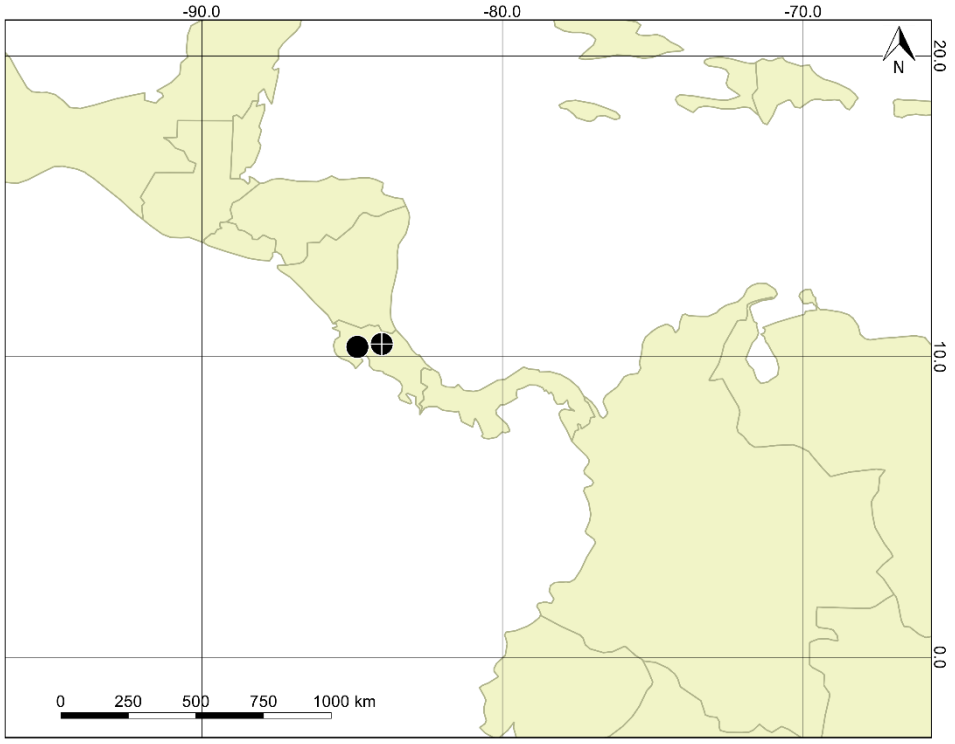


Figure 91. Geographical distribution of *Genus E joyceae.*

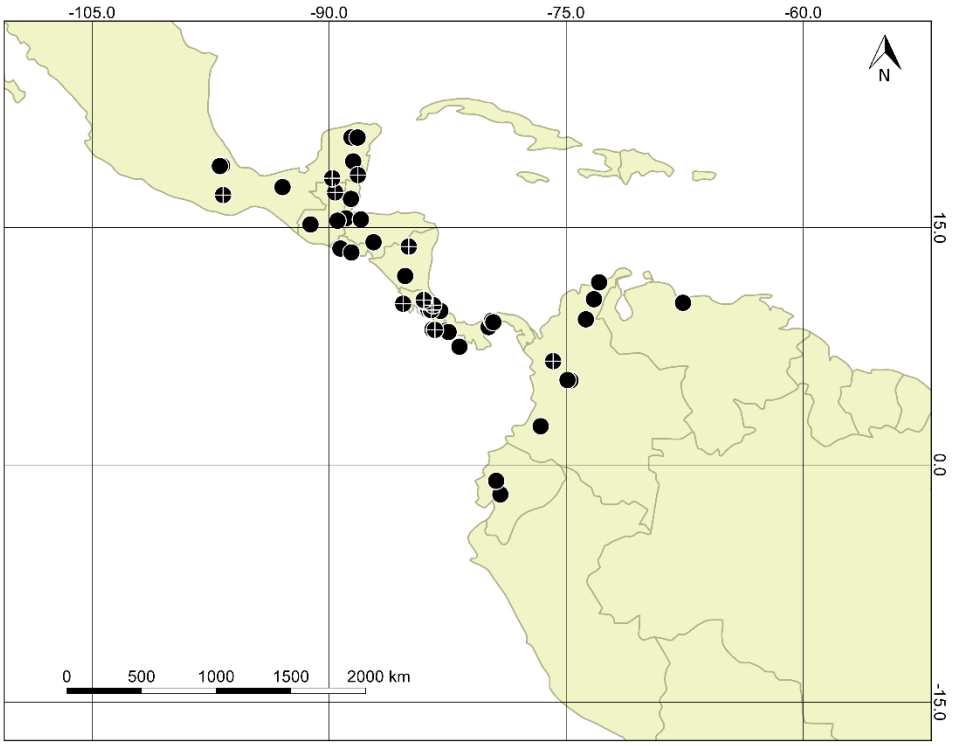
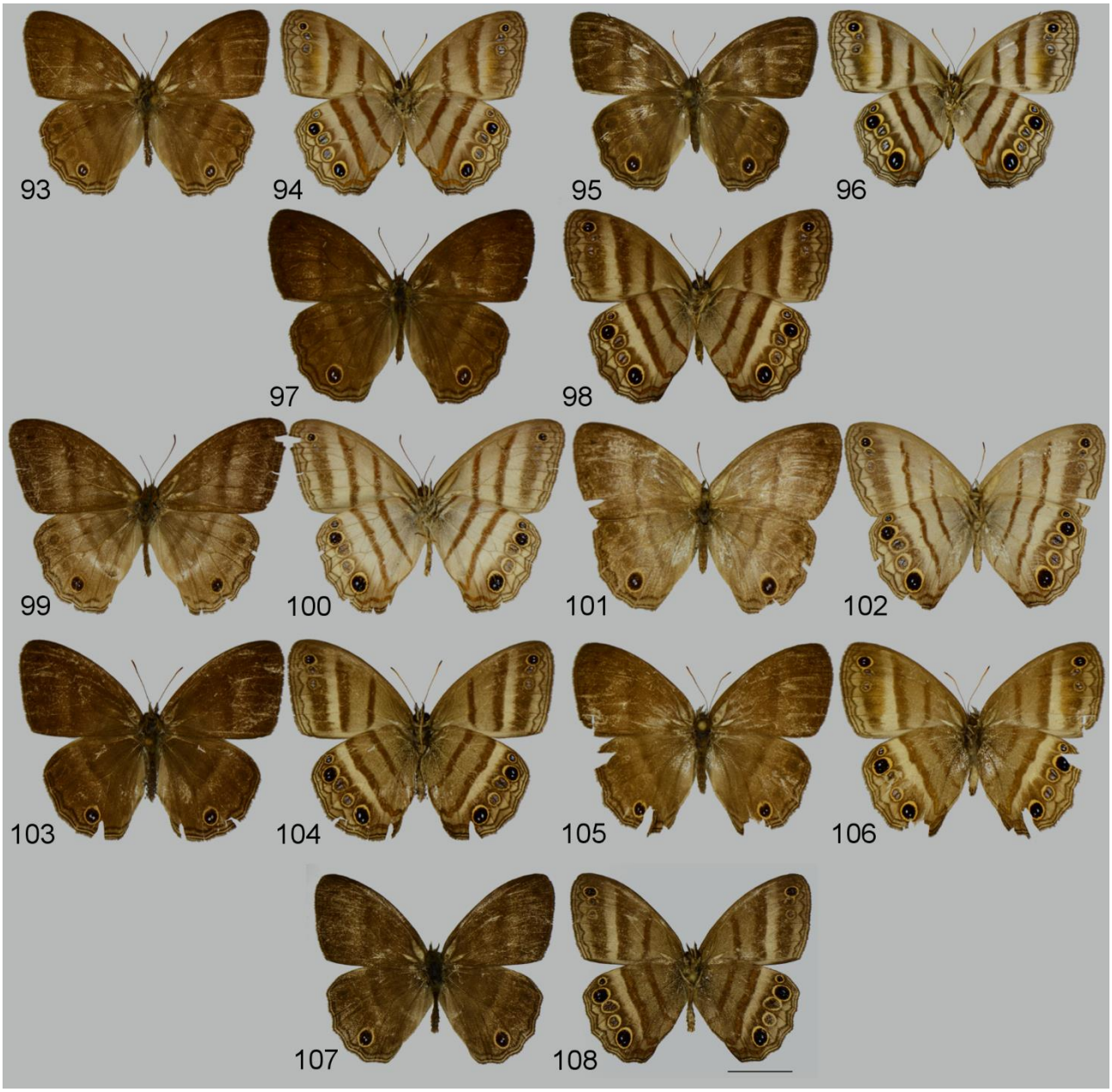
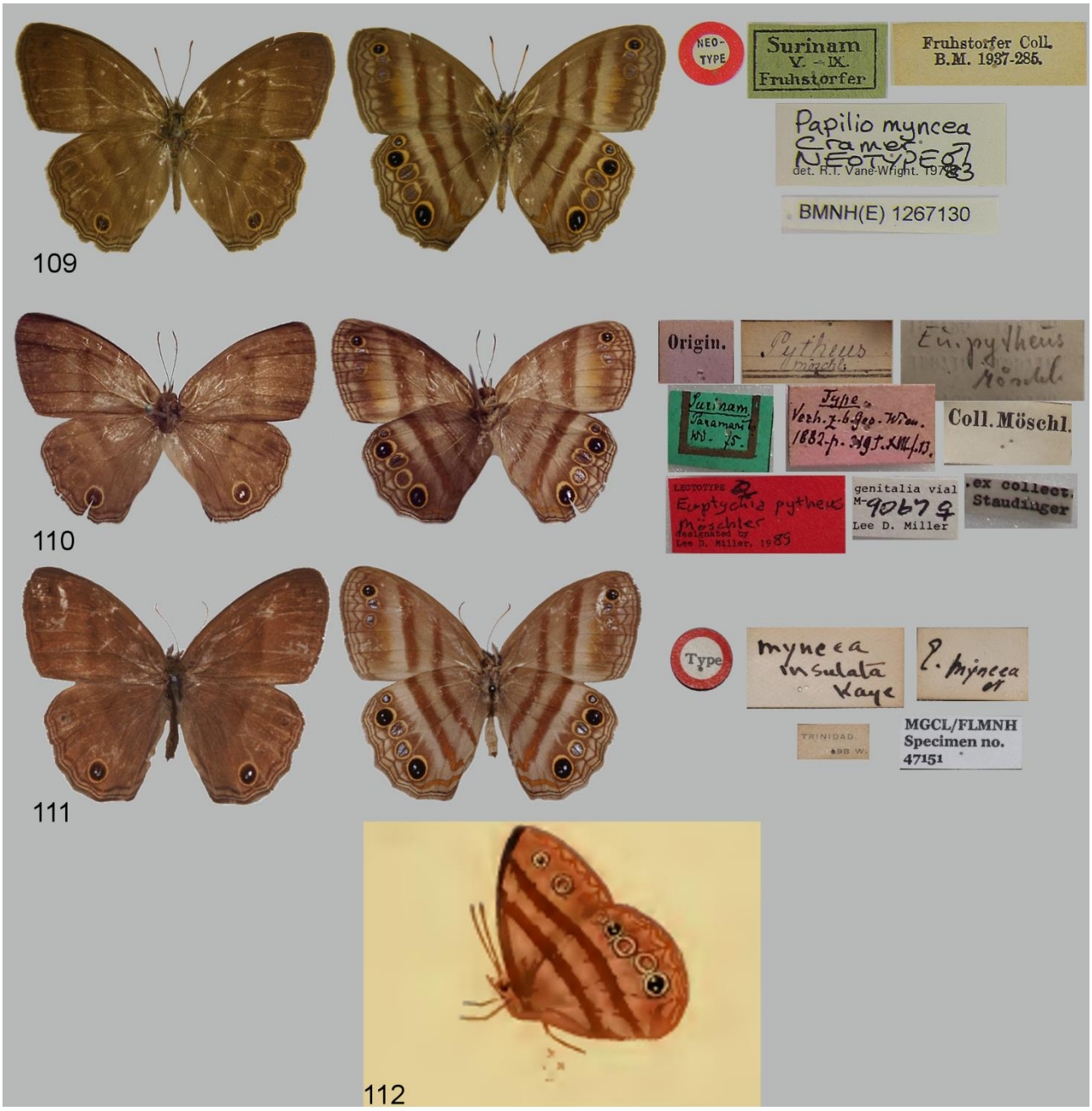


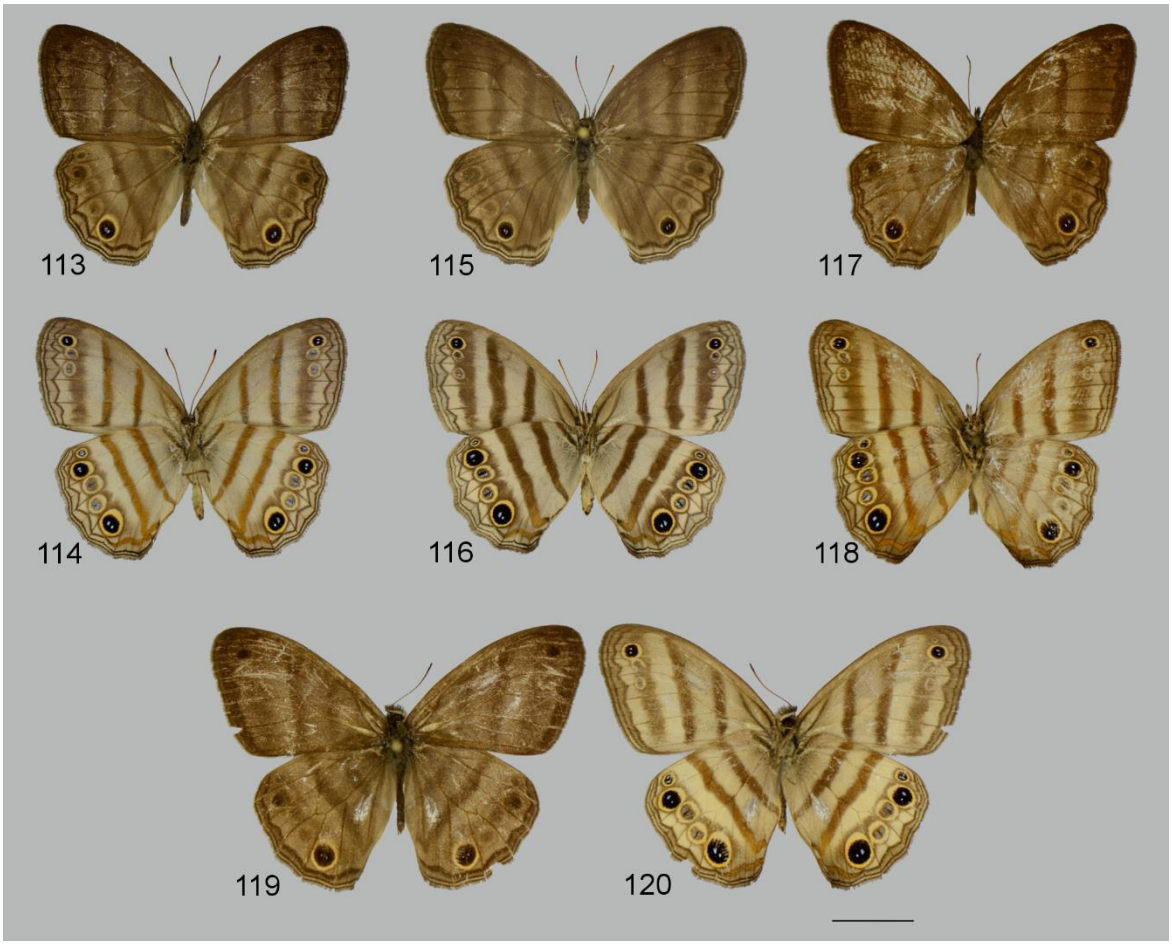
Figure 92. Geographical distribution of *Genus E pseudoconfusa.*



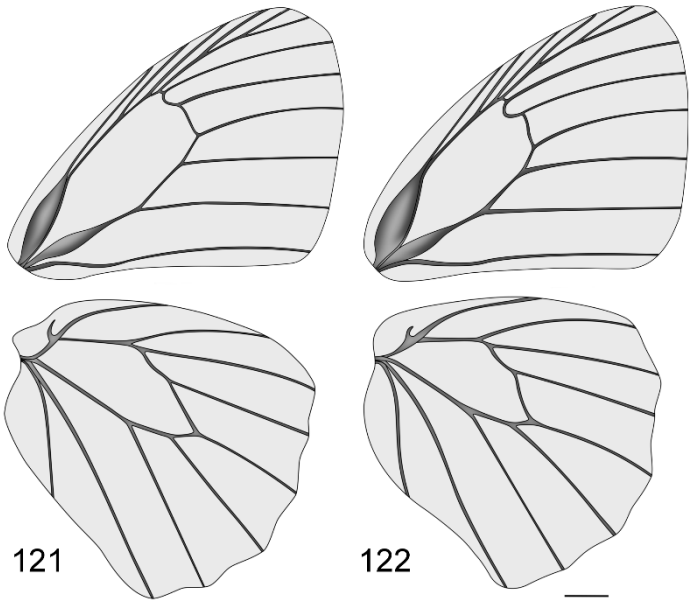
Figures 93-108. Species of *Genus F*. 93-98. *Genus F myncea*: 93. Male, dorsal (Maranhão, Brazil); 94. Male, ventral; 95. Female, dorsal (Acre, Brazil); 96. Female, ventral; 97. Male, dorsal (Rio de Janeiro, Brazil); 98. Male, ventral. 99-102. *Genus F* sp.2: 99. Holotype male, dorsal (Mato Grosso, Brazil); 100. Holotype male, ventral; 101. Female, dorsal (Espírito Santo, Brazil); 102. Female, ventral. 103-106. *Genus F* sp.3: 103. Holotype male, dorsal (Madre de Dios, Peru); 104. Holotype male, ventral; 105. Female, dorsal (Tingo Maria, Peru); 106. Female, ventral. 107-108. *Genus F* sp.4: 107. Holotype male, dorsal (Acre, Brazil); 108. Holotype male, ventral. Scale = 1 cm.



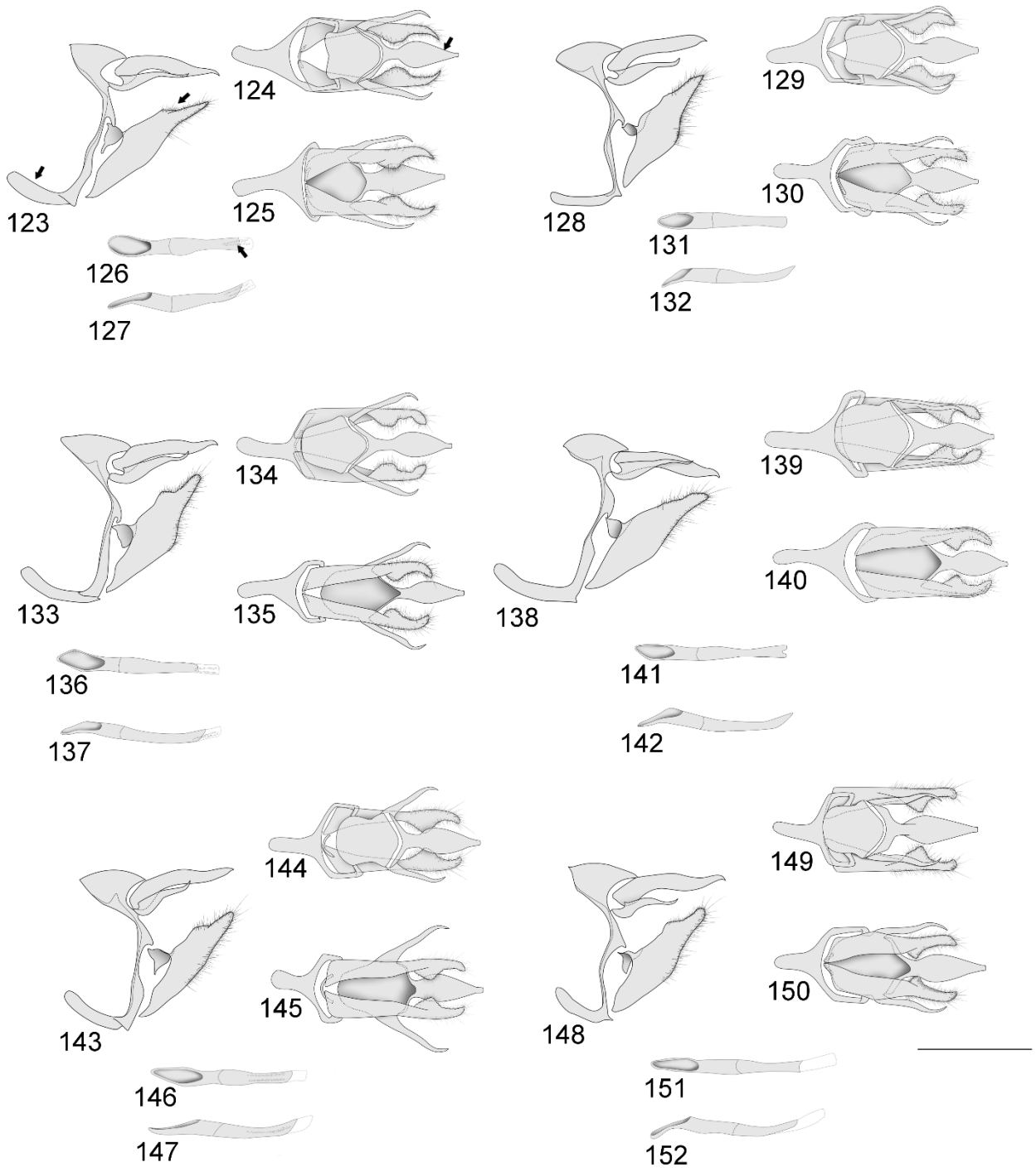
Figures 109-112. Types and original illustration of species of *Genus F*. 109. Neotype of *Papilio myncea* Cramer, 1780 and labels; 110. Lectotype of *Euptychia pytheus* Möschler, 1882 and labels; 111. Lectotype of *Euptychia myncea isolata* Kaye, 1921 and labels; 112. Illustration of *Papilio crantor* Fabricius, 1793 in Donovan (1800). [Photos: 106-107 – B. Huertas, Trustees of the Natural History Museum, London; 108. Willmott, MGCL].



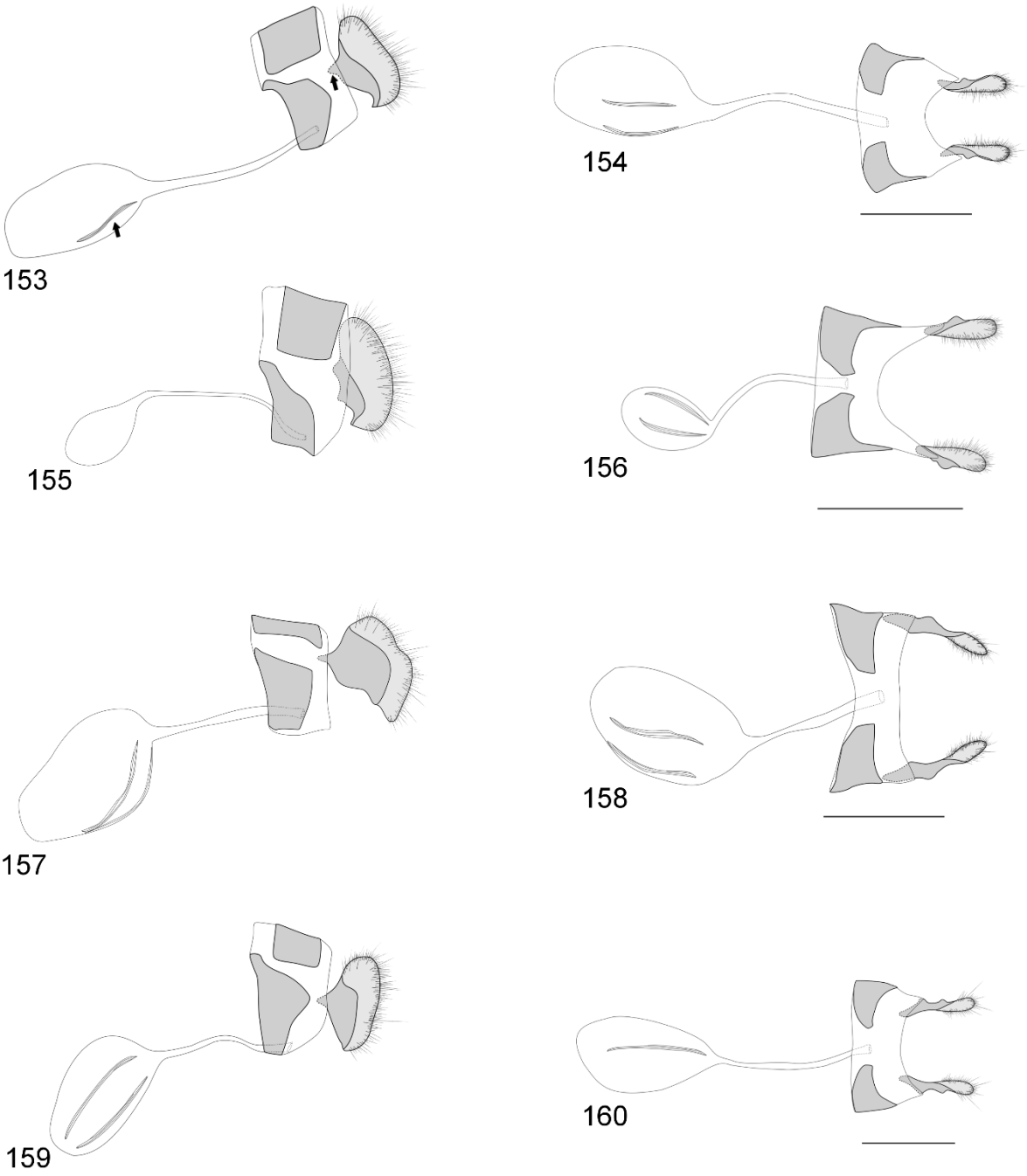
Figures 113-120. Species of *Genus F*. 113-118. *Genus F maripa*: 113. Male, dorsal (Maranhão, Brazil); 114. Male, ventral; 115. Female, dorsal (Acre, Brazil); 116. Female, ventral; 117-118. Variation of *Genus F maripa:* 117. Male, dorsal (Maranhão, Brazil); 118. Male, ventral. 119-120. *Genus F* sp.1: 119. Holotype male, dorsal (French Guiana); 120. Holotype male, ventral. Scale = 1 cm.



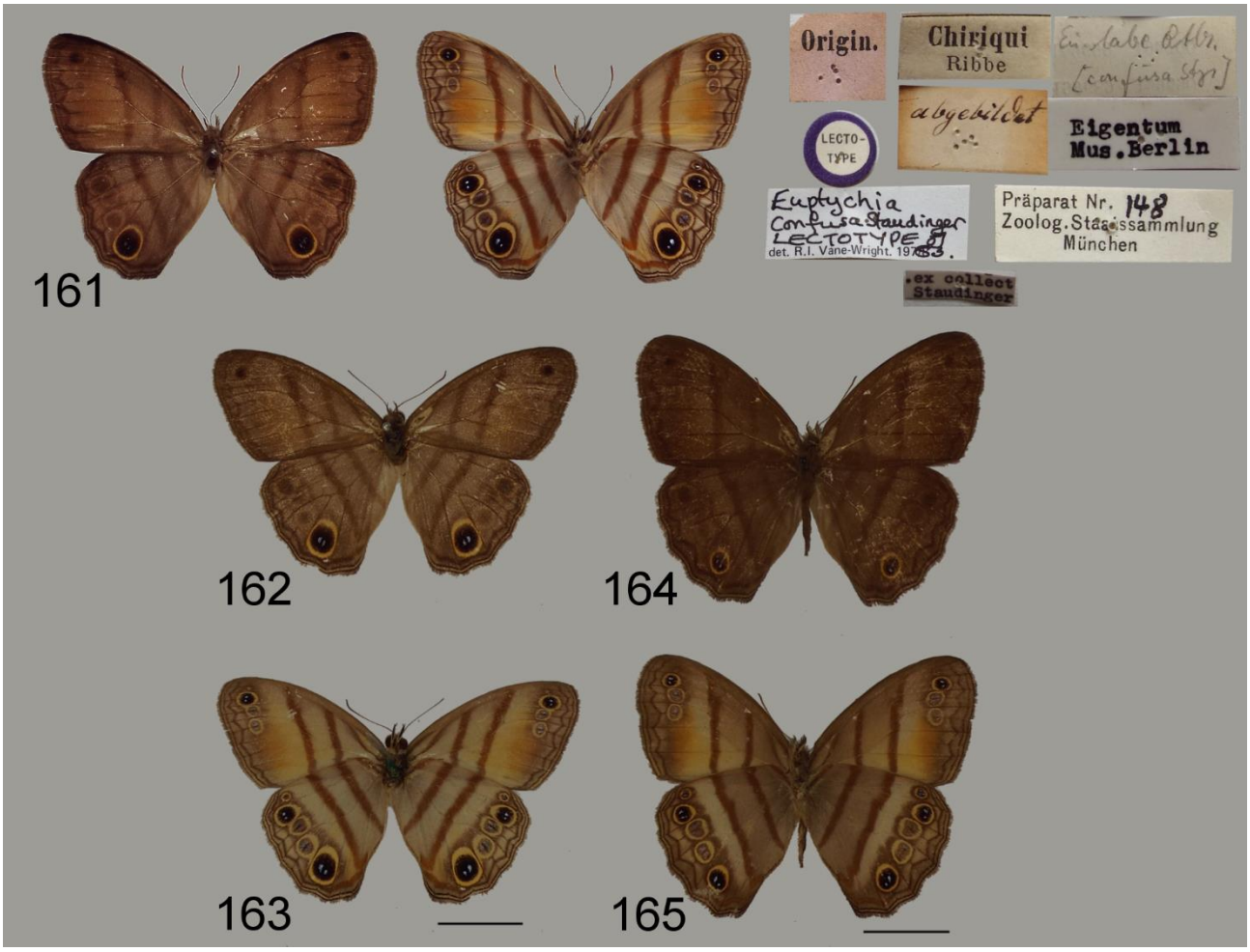
Figures 121-122. Wing venation of *Genus F myncea*. 121. Male; 122. Female. Scale = 2 mm.



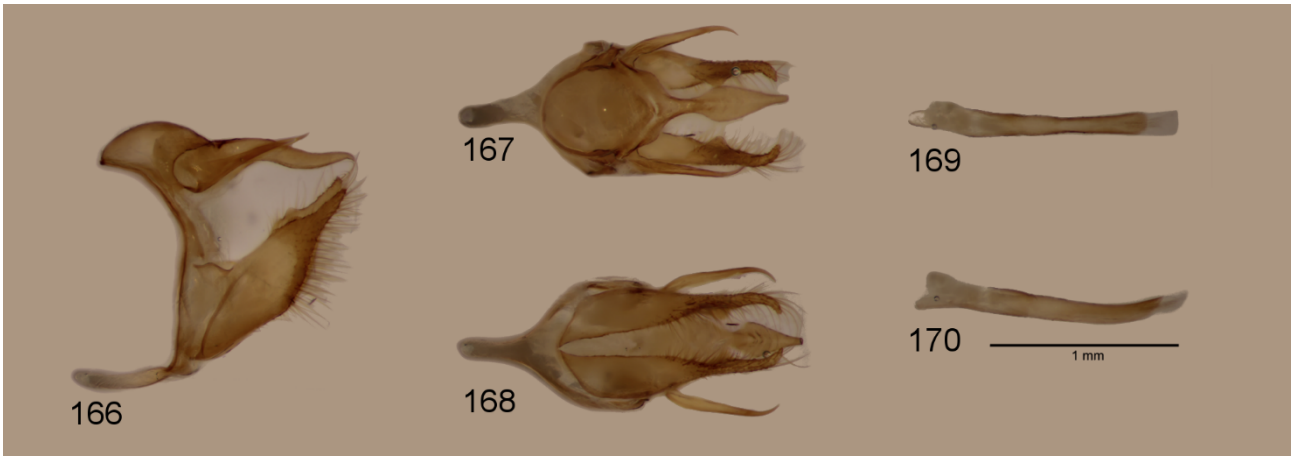
Figures 123-152. Male genitalia of species of *Genus F*. 123-127. *Genus F myncea*: 123. Lateral; 124. Dorsal; 125. Ventral; 126. Aedeago, dorsal; 127. Aedeago, lateral. 128-132. *Genus F maripa*: 128. Lateral; 129. Dorsal; 130. Ventral; 131. Aedeago, dorsal; 132. Aedeago, lateral. 133-137. *Genus F* sp.1: 133. Lateral; 134. Dorsal; 135. Ventral; 136. Aedeago, dorsal; 137. Aedeago, lateral. 138-142. *Genus F* sp.2: 138. Lateral; 139. Dorsal; 140. Ventral; 141. Aedeago, dorsal; 142. Aedeago, lateral. 143-147. *Genus F* sp.3: 143. Lateral; 144. Dorsal; 145. Ventral; 146. Aedeago, dorsal; 147. Aedeago, lateral. 148-152. *Genus F* sp.4: 148. Lateral; 149. Dorsal; 150. Ventral; 151. Aedeago, dorsal; 152. Aedeago, lateral. Scale = 1 mm. Setae indicates remarkable features among the species of the genus.



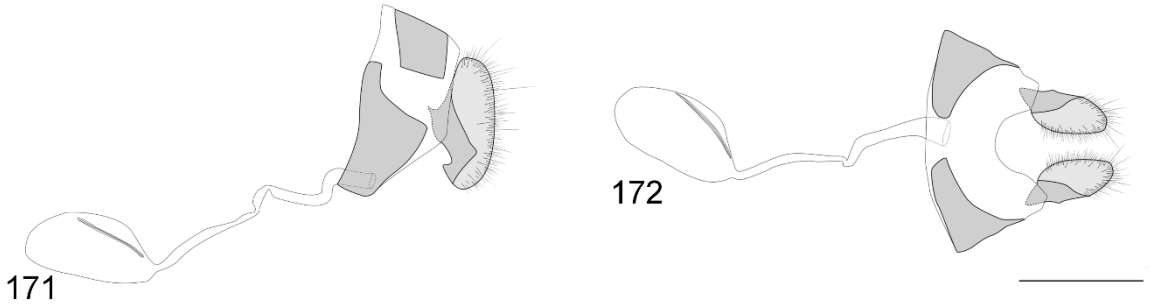
Figures 153-160. Female genitalia of species of *Genus F*: 153-154. *Genus F myncea*: 153. Lateral; 154. Ventral. 155-156. *Genus F maripa*: 155. Lateral; 156. Ventral. 157-158. *Genus F* sp.2: 157. Lateral; 158. Ventral. 159-160. *Genus F* sp.3: 159. Lateral; 160. Ventral. Scale = 1 mm. Setae indicates remarkable features among the species of the genus.



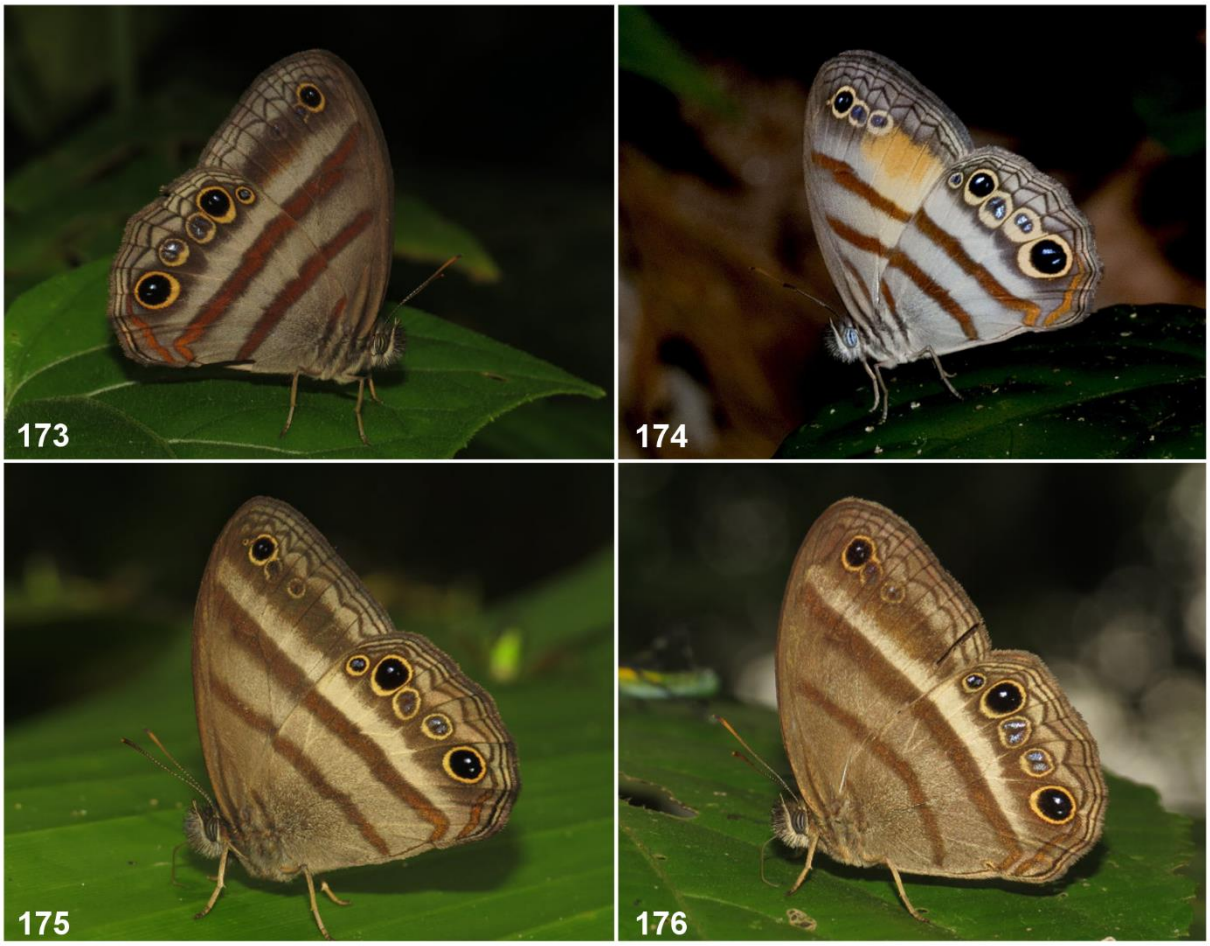
Figures 161-165. *Genus F confusa*: 161. Lectotype male (dorsal and ventral) of *Euptychia confusa* Staudinger, 1887 and labels; 162. Female, dorsal (Bugaba, Panama); 163. Female, ventral. 164-165. *Genus F confusa* ssp.1: 164. Holotype male, dorsal; 165. Holotype male, ventral. [Photos 162-165: © Trustees of the Natural History Museum, London].



Figures 166-170. Male genitalia of *Genus F confusa confusa*: 166. Lateral; 167. Dorsal; 168. Ventral; 169. Aedeago, dorsal; 170. Aedeago, lateral. Scale = 1 mm. © Trustees of the Natural History Museum, London.



Figures 171-172. Female genitalia of *Genus F confusa confusa*: 171. Lateral; 172. Ventral. Scale = 1 mm.



Figures 173-176. Individuals *in situ*: 173. *Genus F myncea*, female (Yulitunqui, Peru); 174. *Genus F confusa confusa* (Río Claro, Colombia); 175. *Genus F sp. n.3*, male (San Martín, Peru); 176. *Genus F sp. n.3*, female (Tingo Maria, Peru). [Photos: 173, 175, 176 – David Geale; 174 – Kim Garwood].

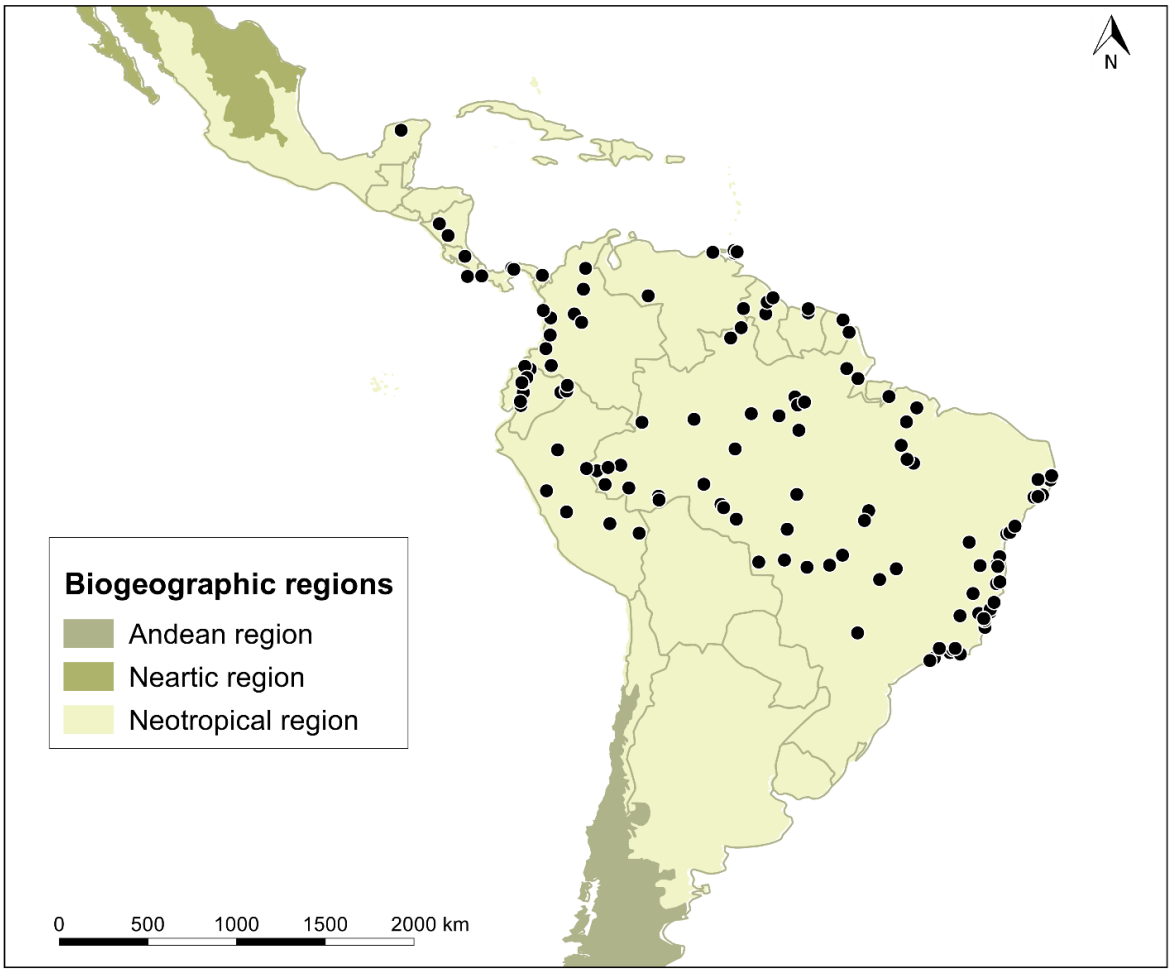


Figure 177. Geographical distribution of *Genus F.*

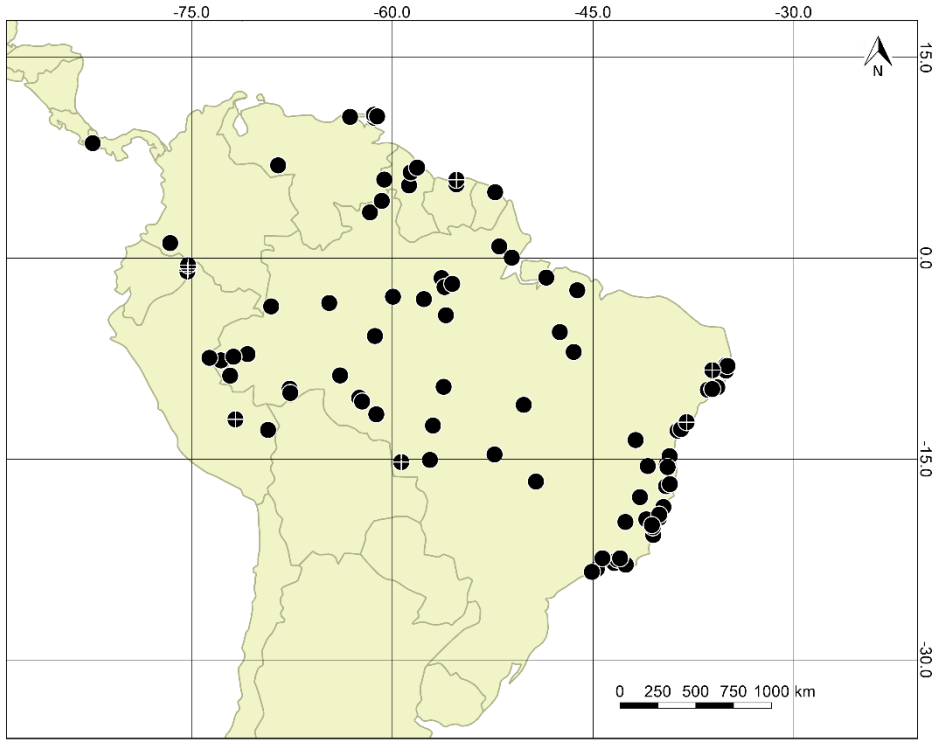


Figure 178. Geographical distribution of *Genus F myncea.* White cross indicates literature records.

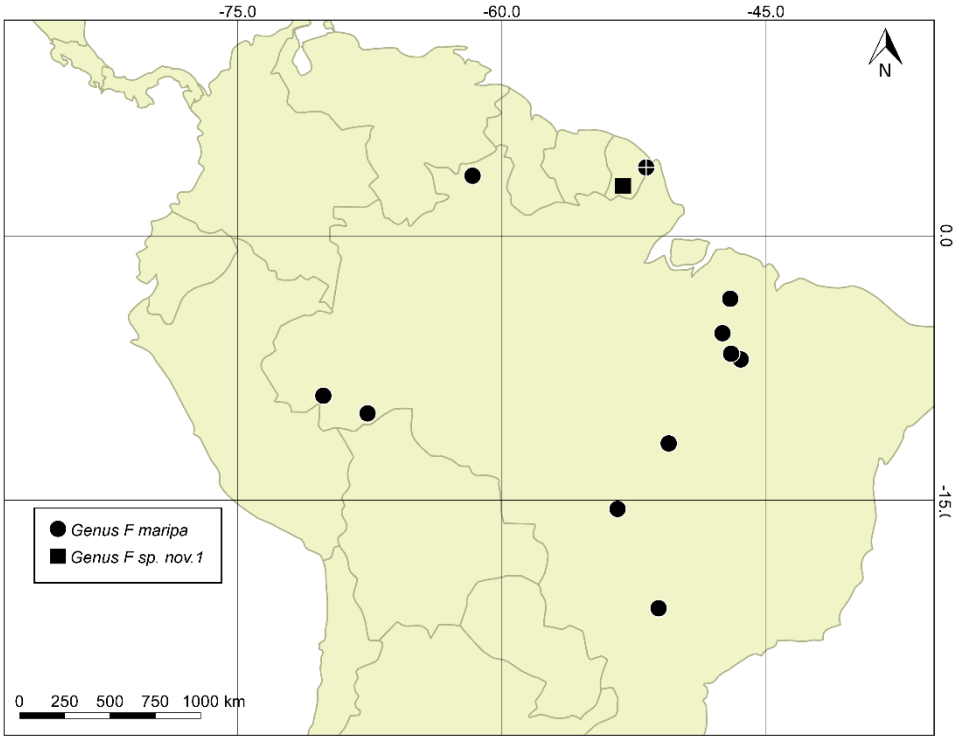


Figure 179. Geographical distribution of *Genus F maripa* and *Genus F* sp.1. White cross indicates literature records.

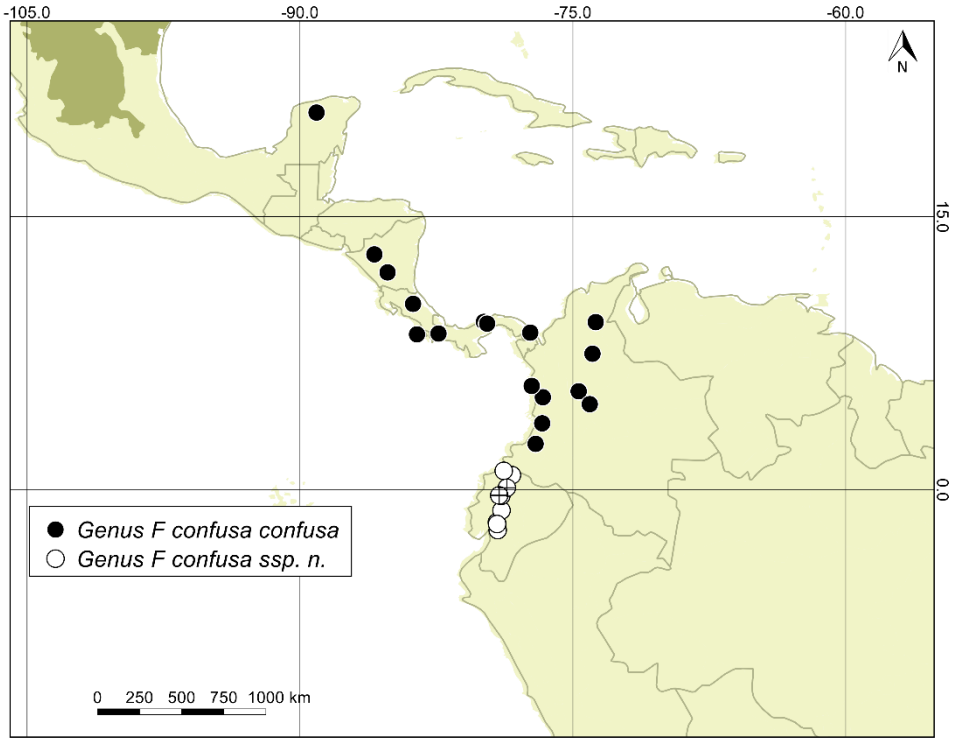


Figure 180. Geographical distribution of *Genus F confusa confusa* and *Genus F confusa* ssp.1. White cross indicates literature records.

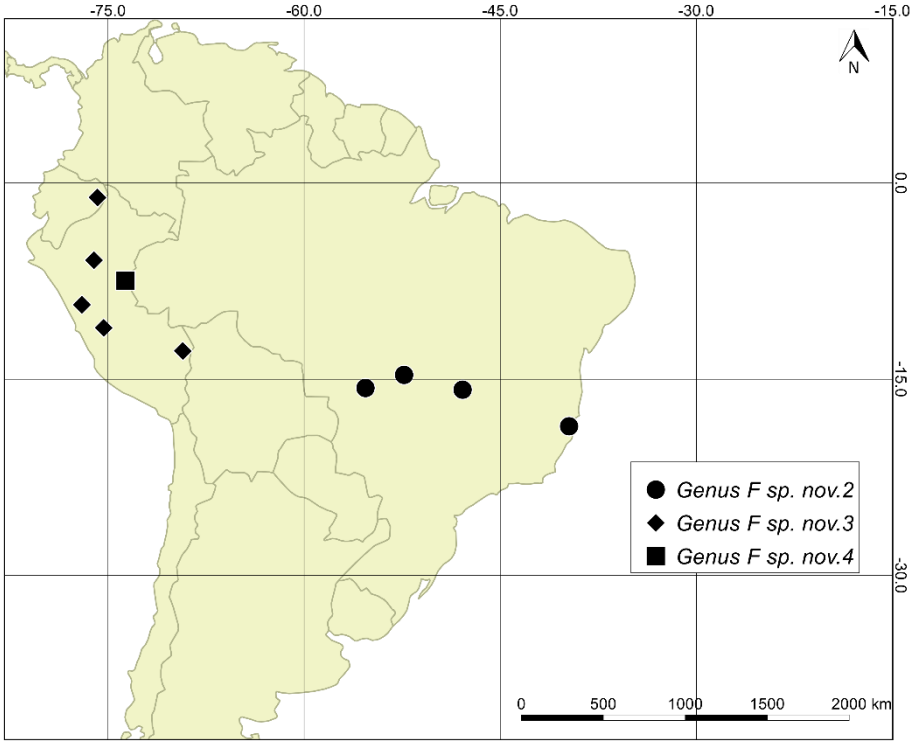
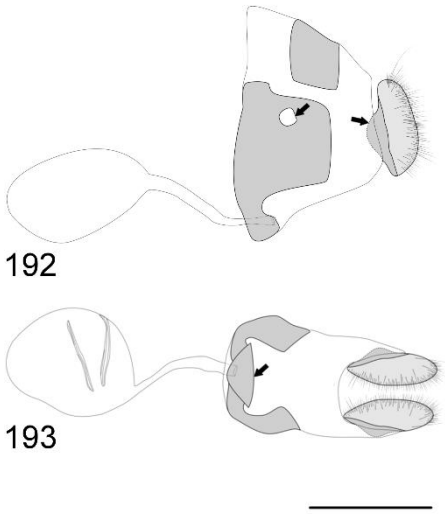


Figure 181. Geographical distribution of *Genus F* sp.2, *Genus F* sp.3 and *Genus F* sp.4.

Figures 182-186. *Megisto cleophes*: 182. Lectotype of *Euptychia cleophes* Godman & Salvin, 1889; 183. Male, dorsal (Guerrero, Mexico); 184. Male, ventral; 185. Female, dorsal (Guerrero, Mexico); 186. Female, ventral. Scale = 1 cm. © Trustees of the Natural History Museum, London.

Figures 187-191. Male genitalia of *Megisto cleophes*: 187. Lateral; 188. Dorsal; 189. Ventral; 190. Aedeago, dorsal; 191. Aedeago, lateral. Scale = 1 mm. © Trustees of the Natural History Museum, London. Setae indicates remarkable features of the species.



Figures 192-193. Female genitalia of *Megisto cleophes*: 192. Lateral; 193. Ventral. Scale = 1 mm. Setae indicates remarkable features of the species

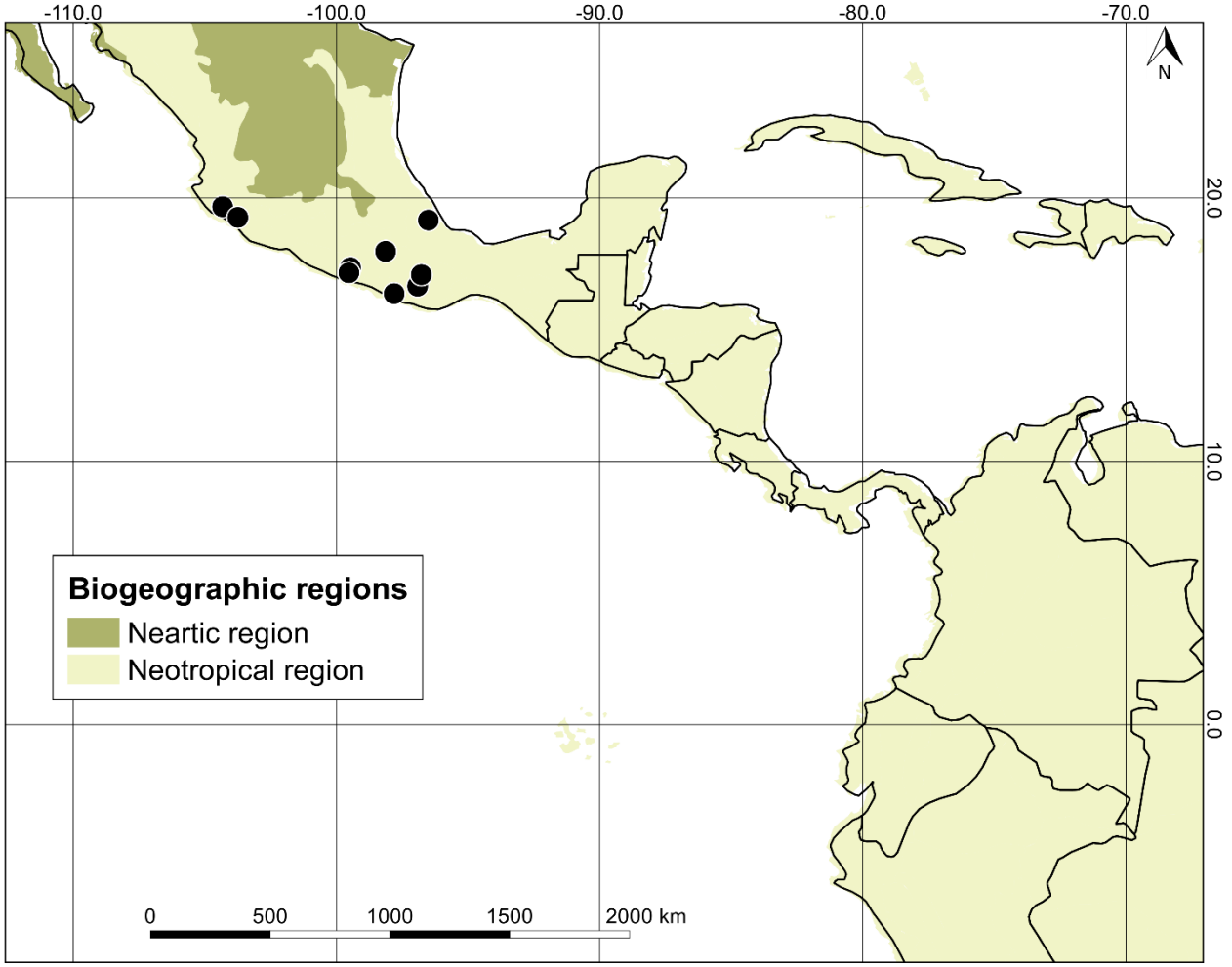


Figure. 194. Geographical distribution of *Megisto cleophes.*

Apesar do crescente aumento de estudos utilizando técnicas moleculares para delimitação de espécies de borboletas nos últimos anos, a presente tese é um exemplo de que o estudo morfológico comparativo ainda é uma ferramenta barata e extremamente útil na taxonomia e sistemática de Lepidoptera, especialmente em Euptychiina. As novas hipóteses apresentadas na presente tese são, em sua maioria, congruentes com as hipóteses inferidas a partir de estudos moleculares (Peña *et al.* 2006, 2010; Espeland *et al.* **in prep.**; Barbosa *et al.* **in prep.**). Além disso, o estudo morfológico permitiu detectar prováveis sinapomorfias para *Cissia*, *Paryphthimoides* e os seis novos gêneros aqui descritos, muito embora uma análise cladística ainda seja necessária para avaliar tais sinapomorfias.

Adicionalmente, o estudo morfológico das espécies nos direciona para questões além da própria taxonomia, tais como a origem e evolução de determinadas estruturas e como elas afetam o *fitness* das espécies. Por exemplo, podemos nos questionar como as androcônias, cornutos e gnathos evoluíram dentro de Euptychiina e quais as funções que desempenham; ou mesmo se o gnatho de Euptychiina (algumas vezes chamado de brachia ou subunco – ver Chapman 1911; Muschamp 1915; Forster 1964) são homólogos aos encontrados em outras famílias de Lepidoptera.

Como pode-se observar, ainda há muito trabalho a ser feito em Euptychiina. Aqui são apresentadas algumas recomendações para futuros estudos no grupo, com algumas propostas já em andamento.

1) Filogenia morfológica de Euptychiina (M. Marín *et al.* **in prep.**);

2) Filogenia molecular com amostragem mais abrangente e em associação à filogenia morfológica;

3) Revisões taxonômicas de *Caeruleuptychia* (Nakahara & Zacca **in prep.**), *Chloreuptychia*, *Euptychoides*, *Hermeuptychia* (Tan *et al.* **in prep.**), *Magneuptychia* sensu Lamas (2004) (Nakahara & Zacca **in prep.**), *Pareuptychia* (M. Marín **in prep.**), *Pharneuptychia* (Barbosa, Zacca & Freitas **in prep.**), *Splendeuptychia* (Huertas **in prep.**) e *Yphthimoides* (Barbosa & Freitas **in prep.**).

4) Estudos sobre a evolução de estruturas sexuais (ex.: androcônias e genitálias) em Euptychiina;

5) Estudos morfológicos e descrição de imaturos, bem como associação com plantas-hospedeiras;

Com a descrição dos 6 novos gêneros e 10 novas espécies na presente tese, Euptychiina passa a ser composta por 54 gêneros e 441 espécies. Desde o surgimento do projeto "ARTS: Phylogeny and systematic revision of the diverse and cryptic Euptychiina" em 2013, sob coordenação de Keith R. Willmott (University of Florida, USA) e a colaboração de mais de 30 pesquisadores da América do Norte, América do Sul e Europa, foram publicados 37 artigos com a descrição de 7 gêneros (Freitas *et al.* 2013; Zacca *et al.* 2013; Nakahara *et al.* 2015a; Costa *et al.* 2016; Freitas *et al.* 2016b; Nakahara *et al.* 2016a, c) e 41 espécies novas (Siewert *et al.* 2013; Zacca *et al.* 2013; Cong & Grishin 2014; Nakahara *et al.* 2014; Neild *et al.* 2014; Zacca *et al.* 2014; Zubek *et al.* 2014; Barbosa *et al.* 2015; Benmesbah *et al.* 2015; Fratello *et al.* 2015; Freitas *et al.* 2015; Nakahara *et al.* 2015b, c, d; Neild *et al.* 2015; Barbosa *et al.* 2016; Costa *et al.* 2016; Huertas *et al.* 2016; Nakahara *et al.* 2016a, b, c; Zacca *et al.* 2016; Nakahara *et al.* 2017) (Fig. 1). Além disso, foram realizadas a revisão taxonômica de *Godartiana* Forster, 1964 (Zacca *et al.* 2016), na qual os gêneros *Cercyeuptychia* Miller & Emmel, 1971 e *Praefaunula* Forster, 1964 são propostos como sinônimos deste, e descrições de estágios imaturos de uma espécie de *Pareuptychia* Forster, 1964 (Freitas *et al.* 2016a) e duas espécies de *Forsterinaria* Gray, 1973 (Freitas *et al.* 2016c). Tal esforço internacional continua providenciando uma melhor classificação para Euptychiina, com objetivo de entender melhor as relações filogenéticas e biogeográficas dos seus gêneros e espécies, através de dados morfológicos e moleculares.

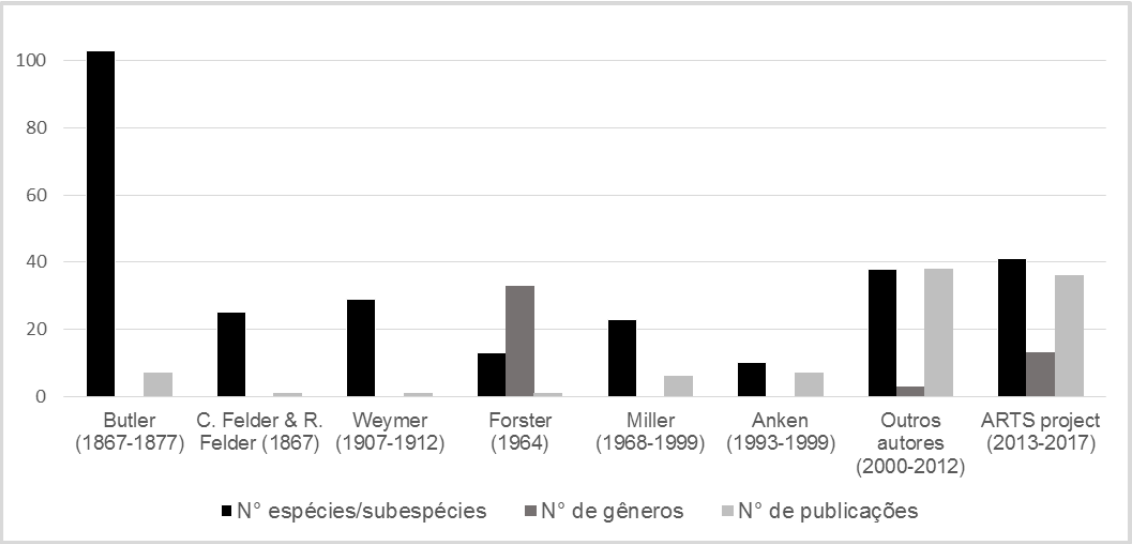


Figura 1. Principais publicações e número de táxons descritos em Euptychiina num período de 150 anos (1867–2017).

Uma lista atualizada dos gêneros e espécies de Euptychiina é apresentada abaixo. A espécie-tipo de cada gênero é assinalada por um *, e o número de espécies são indicados entre parênteses.

Checklist de Euptychiina

***Amphidecta* Butler, 1867** (3)

calliomma (C. Felder & R. Felder, 1862)

pignerator Butler, 1867*

pignerator pignerator Butler, 1867

pignerator simplicia Weymer, 1910

reynoldsi Sharpe, 1890

***Archaeuptychia* Forster, 1964** (1)

cluena (Drury, 1782)*

***Atlanteuptychia* Freitas, Barbosa & Mielke, 2013** (1)

ernestina (Weymer, 1911)*

***Caeruleuptychia* Forster, 1964** (16)

aegrota (Butler, 1867)

caerulea (Butler, 1869)*

coelestis (Butler, 1867)

coelica (Hewitson, 1869)

cyanites (Butler, 1871)

divina (Weymer, 1911)

glauca (Weymer, 1911)

helena (Anken, 1994)

lobelia (Butler, 1870)

mare (Butler, 1869)

penicillata (Godman, 1905)

scopulata (Godman, 1905)

tenera (Weymer, 1911)

umbrosa (Butler, 1870)

urania (Butler, 1867)

ziza (Butler, 1869)

***Capronnieria* Forster, 1964**

galesus (Godart, [1824])*

***Carminda* Dias, 1998**

paeon (Godart, 1824)*

griseldis (Weymer, 1911)

umuarama Ebert & Dias, 1997

***Cepheuptychia* Forster, 1964**

angelica (Butler, 1874)

cephus (Fabricius, 1775)*

glaucina (Bates, 1864)

romani (Aurivillius, 1929)

***Chloreuptychia* Forster, 1964**

agatha (Butler, 1867)

arnaca (Fabricius, 1776)

callichloris (Butler, 1867)

catharina (Staudinger, [1886])

chlorimene (Hübner, [1819])*

herseis (Godart, [1824])

hewitsonii (Butler, 1867)

marica (Weymer, 1911)

sericeella (Bates, 1864)

tolumnia (Cramer, 1777)

***Cissia* Doubleday, 1848**

penelope (Fabricius, 1775)*

pompilia (C. Felder & R. Felder, 1867)

proba (Butler, 1867)

eous (Butler, 1867) **comb. n.**

phronius (Godart, [1824]) **comb. n.**

***Cyllopsis* R. Felder, 1869**

argentella (Butler & Druce, 1872)

caballeroi Beutelspacher, 1982

clinas (Godman & Salvin, 1889)

diazi Miller, 1974

dospassosi Miller, 1974

emilia Chacón & Nishida, 2002

gemma (Hübner, 1808)

guatemalena Miller, 1974

hedemanni R. Felder, 1869*

hedemanni hedemanni R. Felder, 1869

hedemanni tamaulipensis Miller, 1974

hedemanni vetones (Godman & Salvin, 1878)

hilaria (Godman, 1901)

jacquelineae Miller, 1974

nayarit (Chermock, 1947)

nelsoni (Godman & Salvin, 1881)

pallens Miller, 1974

parvimaculata Miller, 1974

pephredo (Godman, 1901)

perplexa Miller, 1974

pertepida (Dyar, 1912)

pertepida perpepida (Dyar, 1912)

pertepida avicula (Nabokov, 1942)

pertepida intermedia Miller, 1974

pertepida maniola (Nabokov, 1942)

philodice (Godman & Salvin, 1878)

pseudopephredo (Chermock, 1947)

pyracmon (Butler, 1867)

pyracmon pyracmon (Butler, 1867)

pyracmon henshawi (Edwards, 1876)

rogersi (Godman & Salvin, 1878)

schausi Miller, 1974

steinhauserorum Miller, 1974

suivalenoides Miller, 1974

suivalens (Dyar, 1914)

suivalens suivalens (Dyar, 1914)

suivalens escalantei Miller, 1974

whiteorum Miller & Mazza, 1984

windi Miller, 1974

***Erichthodes* Forster, 1964**

antonina (C. Felder & R. Felder, 1867)*

arius (Weymer, 1911)

jovita (C. Felder & R. Felder, 1867)

julia (Weymer, 1911)

narapa (Schaus, 1902)

***Euptychia* Hübner, 1818**

alacristata Neild, Nakahara & Fratello, 2014

aquila Fratello, Nakahara & Brévigon, 2015

attenboroughi Neild, Nakahara, Fratello & Le Crom, 2015

atlantica Nakahara & Freitas, 2017

audacia Brévignon, Fratello & Nakahara, 2015

boulleti (Le Cerf, 1919)

cesarense Pulido, Andrade, Peña & Lamas, 2011

cesarense cesarense Pulido, Andrade, Peña & Lamas, 2011

cesarense obtusa Nakahara, 2015

cesarense viloriai Andrade, Pulido, Peña & Lamas, 2011

enyo Butler, 1867

enyita Nakahara, Lamas & Willmott, 2015

favonius Nakahara, Veja & Willmott, 2016

fernandae Nakahara & Willmott, 2015

fetna Butler, 1870

granatina Nakahara, Le Crom & Hall, 2015

hannemanni Forster, 1964

insolata Butler & Druce, 1872

jesia Butler, 1869

juanjoi Le Crom, Nakahara & Lamas, 2015

lacandona Warren & Nakahara, 2015

marceli Brévignon, 2005

meta Weymer, 1911

mollina (Hübner, [1813])*

neblina Warren & Nakahara, 2015

padroni Nakahara, Lamas & Willmott, 2015

pegasus Nakahara & Hall, 2015

picea Butler, 1867

pillaca Nakahara & Willmott, 2015

roraima Nakahara, Fratello & Harvey, 2014

rubrofasciata Miller & Miller, 1988

rufocincta Weymer, 1911

sophiae Zacca, Nakahara, Dolibaina & Dias, 2015

truncata Nakahara & Hall, 2015

westwoodi Butler, 1867

***Euptychoides* Forster, 1964**

albofasciata (Hewitson, 1869)

castrensis (Schaus, 1902)

eugenia (C. Felder & R. Felder, 1867)

fida (Weymer, 1911)

hotchikissi (Dyar, 1913)

laccine (C. Felder & R. Felder, 1867)

nossis (Hewitson, 1862)

pseudosaturnus Forster, 1964

saturnus (Butler, 1867)*

***Forsterinaria* Gray, 1973**

anophthalma (C. Felder & R. Felder, 1867)

antje Peña & Lamas, 2005

boliviana (Godman, 1905)

coipa Peña & Lamas, 2005

difficilis (Forster, 1964)

emo Zubek, Pyrcz & Boyer, 2014

enjuerma Peña & Lamas, 2005

falcata Peña & Lamas, 2005

guaniloi Peña & Lamas, 2005

hannieri Zubek & Pyrcz, 2011

inornata (C. Felder & R. Felder, 1867)

inornata inornata (C. Felder & R. Felder, 1867)

inornata magdalena (Hayward, 1957)

itatiaia Peña & Lamas, 2005

necys (Godart, [1824])*

neonympha (C. Felder & R. Felder, 1867)

pallida Peña & Lamas, 2005

pichita Peña & Lamas, 2005

pilosa Peña & Lamas, 2005

pronophila (Butler, 1867)

proxima (Hayward, 1957)

pseudinornata (Forster, 1964)

punctata Peña & Lamas, 2005

pseudonecys (Strand, 1916)

pyrczi Peña & Lamas, 2005

quantius (Godart, [1824])

rotunda Peña & Lamas, 2005

rustica (Butler, 1868)

rustica rustica (Butler, 1868)

rustica villarresi (Dognin, 1887)

stella (Hayward, 1957)

***Godartiana* Forster, 1964**

amadoi Paluch, Zacca & Freitas, 2016

armilla (Butler, 1867)

byses (Godart, [1824])*

luederwaldti (Spitz, 1931)

muscosa (Butler, 1870)

***Graphita* Nakahara, Marín & Barbosa, 2016**

griphe (C. Felder & R. Felder, 1867)*

***Harjesia* Forster, 1964**

blanda (Möschler, 1877)*

obscura (Butler, 1867)

vrazi (Kheil, 1896)

***Hermeuptychia* Forster, 1964**

atalanta (Butler, 1867)

clara Nakahara, Tan, Lamas & Willmott, 2016

cucullina (Weymer, 1911)

fallax (C. Felder & R. Felder, 1867)

fallax fallax (C. Felder & R. Felder, 1867)

fallax marinha Anken, 1994

harmonia (Butler, 1867)

hermes (Fabricius, 1775)*

hermybius Grishin, 2014

intricata Grishin, 2014

maimoune (Butler, 1870)

pimpla (C. Felder & R. Felder, 1867)

sosybius (Fabricius, 1793)

undulata (Butler, 1867) **comb. n.**

***Huberonympha* Viloria & Costa, 2016**

neildi Viloria, Costa, Fratello & Nakahara, 2016*

***Inbio* Nakahara & Espeland, 2015**

hilara (C. Felder & R. Felder, 1867)*

***Magneuptychia* Forster, 1964**

agnata (Schaus, 1913)

alcinoe (C. Felder & R. Felder, 1867)

analis (Godman, 1905)

drymo (Schaus, 1913)

francisca (Butler, 1870)

fugitiva Lamas, [1997]

gera (Hewitson, 1850)

gera gera (Hewitson, 1850)

gera nobilis (Weymer, 1911)

gera nortia (Hewitson, 1862)

gomezi (Singer, DeVries & Ehrlich, 1983)

harpyia (C. Felder & R. Felder, 1867)

harpyia harpyia (C. Felder & R. Felder, 1867)

harpyia batesii (Butler, 1867)

inani (Staudinger, [1886])

iris (C. Felder & R. Felder, 1867)

lea (Cramer, 1777)

lea lea (Cramer, 1777)

lea philippa (Butler, 1867)

libye (Linnaeus, 1767)*

metagera (Butler, 1867)

mimas (Godman, 1905)

moderata (Weymer, 1911)

modesta (Butler, 1867)

mycalesis (Röber, 1927)

nebulosa (Butler, 1867)

newtoni (Hall, 1939)

ocnus (Butler, 1867)

ocypete (Fabricius, 1776)

opima (Weymer, 1911)

pallema (Schaus, 1902)

pax Huertas, Lamas, Fagua & Willmott, 2016

probata (Weymer, 1911)

segesta (Weymer, 1911)

tiessa (Hewitson, 1869)

tricolor (Hewitson, 1850)

tricolor tricolor (Hewitson, 1850)

tricolor fulgora (Butler, 1869)

***Megeuptychia* Forster, 1964**

antonoe (Cramer, 1775)*

monopunctata Willmott & Hall, 1995

souadae Benmesbah, 2015

***Megisto* Hübner, [1819]**

cleophes (Godman & Salvin, 1889) comb. n.

cymela (Cramer, 1777)*

rubricata (Edwards, 1871)

rubricata rubricata (Edwards, 1871)

rubricata anabelae Miller, 1976

rubricata cheneyorum (Chermock, 1949)

rubricata pseudocleophes Miller, 1976

rubricata smithorum (Wind, 1946)

***Moneuptychia* Forster, 1964**

giffordi Freitas, Emery & Mielke, 2010

itapeva Freitas, 2007

melchiades (Butler, 1877)

montana Freitas, 2015

pervagata Freitas, Siewert & Mielke, 2015

soter (Butler, 1877)*

vitellina Freitas & Barbosa, 2015

wahlbergi Freitas, Barbosa, Siewert & Mielke, 2015

***Neonympha* Hübner, 1818**

areolatus (Smith, 1797)*

helicta (Hübner, [1808])

helicta helicta (Hübner, [1808])

helicta dadeensis Gatrelle, 1999

helicta septentrionalis Davis, 1924

mitchellii French, 1889

mitchellii mitchellii French, 1889

mitchellii francisci Parshall & Kral, 1989

***Paleonympha* Butler, 1871**

opalina Butler, 1871*

***Paramacera* Butler, 1868**

allyni Miller, 1972

chinanteca Miller, 1972

copiosa Miller, 1972

xicaque (Reakirt, [1867])*

xicaque xicaque (Reakirt, [1867])

xicaque rubrosuffusa Miller, 1972

***Parataygetis* Forster, 1964**

albinotata (Butler, 1867)*

lineata (Godman & Salvin, 1880)

***Pareuptychia* Forster, 1964**

binocula (Butler, 1869)

difficilis (Forster, 1964)

hesioniades Forster, 1964*

lydia (Cramer, 1777)

metaleuca (Boisduval, 1870)

milleri Nakahara, Marín & Neild, 2016

ocirrhoe (Fabricius, 1776)

ocirrhoe ocirrhoe (Fabricius, 1776)

ocirrhoe interjecta (d'Almeida, 1952)

summandosa (Gosse, 1880)

***Paryphthimoides* Forster, 1964**

brixius (Godart, [1824]) **comb. n.**

brixius brixius (Godart, [1824]) **comb. n.**

brixius brixiola (Butler, 1867) **comb. n.**

poltys (Prittwitz, 1865)*

poltys poltys (Prittwitz, 1865)

poltys binalinea (Butler, 1867) **comb. n., stat. n.**

terrestris (Butler, 1867) **comb. n.**

touloulou (Benmesbah, 2015) **comb. n.**

vestigiata (Butler, 1867)

sp.1 Zacca, Casagrande & Mielke **sp. n.**

sp.2 Zacca, Casagrande & Mielke **sp. n.**

sp.3 Zacca, Casagrande & Mielke **sp. n.**

sp.4 Zacca, Casagrande & Mielke **sp. n.**

sp.5 Zacca, Casagrande & Mielke **sp. n.**

***Pharneuptychia* Forster, 1964**

boliviana (Hayward, 1957)

innocentia (C. Felder & R. Felder, 1867)

phares (Godart, [1824])*

pharnabazos (Bryk, 1953)

pharnaces (Weymer, 1911)

romanina (Bryk, 1953)

***Pindis* R. Felder, 1869**

squamistriga Felder, 1869*

***Posttaygetis* Forster, 1964**

penelea (Cramer, 1777)*

***Prenda* Freitas & Mielke, 2011**

clarissa Freitas & Mielke, 2011*

***Pseudeuptychia* Forster, 1964**

hemileuca (Staudinger, [1886])

languida (Butler, 1867)*

***Pseudodebis* Forster, 1964**

celia (Cramer, 1779)

dubiosa Forster, 1964

euptychidia (Butler, 1868)

marpessa (Hewitson, 1862)

puritana (Weeks, 1902)

valentina (Cramer, 1779)*

zimri (Butler, 1869)

***Rareuptychia* Forster, 1964**

clio (Weymer, 1911)*

***Satyrotaygetis* Forster, 1964**

satyrina (Bates, 1865)

***Sepona* Freitas & Barbosa, 2016**

punctata (Weymer, 1911)*

***Splendeuptychia* Forster, 1964**

ackeryi Huertas, Ríos & Le Crom, 2009

ambra (Weymer, [1911])

ashna (Hewitson, 1869)*

aurigera (Weymer, [1911])

boliviensis Forster, 1964

clementia (Butler, 1877)

clorimena (Stoll, 1790)

cosmophila (Hübner, 1823)

doxes (Godart, [1824])

furina (Hewitson, 1862)

hygina (Butler, 1877)

itonis (Hewitson, 1862)

junonia (Butler, 1867)

kendalli Miller, 1976

latia (Butler, 1867)

libitina (Butler, 1870)

mercedes Huertas, 2011

pagyris (Godart, [1824])

purusana (Aurivillius, 1929)

quadrina (Butler, 1869)

salvini (Butler, 1867)

telesphora (Butler, 1877)

toynei Willmott & Hall, 1995

triangula (Aurivillius, 1929)

zischkai Forster, 1964

***Stegosatyrus* Zacca, Mielke & Pyrcz, 2013**

hemiclara Pyrcz, Boyer & Zacca, 2013

imbrialis (Weeks, 1901)

ocelloides (Schaus, 1902)

periphas (Godart, [1824])*

***Stevenaria* Viloria, Costa, Neild & Nakahara, 2016**

divergens (Butler, 1867)

nakaharai Viloria, Costa, Fratello & Neild, 2016

yutajensis Viloria & Costa, 2016

***Taydebis* Freitas, 2003**

melobosis Capronnier, 1874* **comb. n.**

***Taygetina* Forster, 1964**

banghaasi (Weymer, 1910)*

kerea (Butler, 1869)

oreba (Butler, 1870)

peribaea (Godman & Salvin, 1880)

***Taygetis* Hübner, [1819]**

acuta Weymer, 1910

angulosa Weymer, 1907

asterie Weymer, 1910

chiquitana Forster, 1964

chrysogone Doubleday, [1849]

cleopatra C. Felder & R. Felder, 1867

drogoni Siewert, Zacca, Dias & Freitas, 2013

echo (Cramer, 1775)

elegia Weymer, 1910

fulginia d'Almeida, 1922

inambari Miller & Lamas, 1999

inconspicua Draudt, 1931

laches (Fabricius, 1793)

larua C. Felder & R. Felder, 1867

leuctra Butler, 1870

mermeria (Cramer, 1776)

rectifascia Weymer, 1907

rufomarginata Staudinger, 1888

servius Weymer, 1919

sosis Hopffer, 1874

sylvia Bates, 1866

thamyra (Cramer, 1779)

tripunctata Weymer, 1907

uzza Butler, 1869

virgilia (Cramer, 1776)*

zippora Butler, 1869

ypthima Hübner, [1821]

weymeri (Draudt, 1912)

***Yphthimoides* Forster, 1964**

acmenis (Hübner, 1823)

affinis (Butler, 1867)[1]

angularis (Butler, 1867)

argyrospila (Butler, 1867)

austera (Butler, 1867)

bella Barbosa & Freitas, 2015

blanquita Barbosa, Marín & Freitas, 2016

borasta (Schaus, 1902)

celmis (Godart, [1824])

eriphule (Butler, 1867)

gabriela Barbosa, Freitas & Paluch, 2015

iserhardi Freitas & Barbosa, 2015

leguialimai (Dyar, 1913)

nareta Barbosa & Freitas, 2016

maepius (Godart, [1824])[1]

maepius maepius (Godart, [1824])

maepius guenzeli Anken, 1994

maepius perfuscata (Butler, 1868)

manasses (C. Felder & R. Felder, 1867)

mimula (Hayward, 1954)[1]

mythra (Weymer, 1911)

neomaenas (Hayward, 1967)

ochracea (Butler, 1867)

ordinaria Freitas, Kaminski & Mielke, 2012

pacta (Weymer, 1911)

patricia (Hayward, 1957)

renata (Stoll, 1780)

straminea (Butler, 1867)

viviana (Romieux, 1927)

yphthima (C. Felder & R. Felder, 1867)*

***Zischkaia* Forster, 1964**

amalda (Weymer, 1911)

mima (Butler, 1867)

pacarus (Godart, [1824])*

saundersii (Butler, 1867)

***Vareuptychia* Forster, 1964**

similis (Butler, 1867)* **comb. n., stat. rest.**

themis (Butler, 1870) **comb. n.**

***Genus A* Zacca, Casagrande & Mielke gen. n.**

argulus (Godart, [1824])* **comb. n.**

argulus argulus (Godart, [1824]) **comb. n.**

argulus ssp.1 Zacca, Casagrande & Mielke **ssp. n.**

difficilis (Forster, 1964) **comb. n.**

numeria (C. Felder & R. Felder, 1867) **comb. n.**

sp.1 Zacca, Casagrande & Mielke **sp. n.**

***Genus B* Zacca, Casagrande & Mielke gen. n.**

grimon (Godart, [1824])* **comb. n.**

***Genus C* Zacca, Casagrande & Mielke gen. n.**

flavofascia (Zacca & Siewert, 2014)* **comb. n.**

***Genus D* Zacca, Casagrande & Mielke, gen. n.**

labe (Butler, 1870)* **comb. n.**

lesbia (Staudinger, [1886]) **comb. n.**

palladia (Butler, 1867) **comb. n.**

***Genus E* Zacca, Casagrande & Mielke gen. n.**

joycea (Singer, DeVrires & Ehrlich, 1983) **comb. n.**

pseudoconfusa (Singer, DeVrires & Ehrlich, 1983)* **comb. n.**

***Genus F* Zacca, Casagrande & Mielke, gen. n.**

confusa (Staudinger, 1867) **comb. n.**

confusa confusa (Staudinger, 1867) **comb. n.**

confusa ssp.1 Zacca, Casagrande & Mielke **sp. n.**

maripa (Brévignon, 2005) **comb. n.**

myncea (Cramer, 1780)* **comb. n.**

sp.1 Zacca, Casagrande & Mielke **sp. n.**

sp.2 Zacca, Casagrande & Mielke **sp. n.**

sp.3 Zacca, Casagrande & Mielke **sp. n.**

sp.4 Zacca, Casagrande & Mielke **sp. n.**

Nota: [1] Espécies à serem transferidas para o *Genus B* Zacca, Casagrande & Mielke **gen. n.** (ver discussão no Capítulo 2).

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A new species of *Magneuptychia* Forster, 1964 (Lepidoptera: Nymphalidae: Satyrinae) from Brazilian Savanna

THAMARA ZACCA, RICARDO R. SIEWERT, OLAF H. H. MIELKE & MIRNA M. CASAGRANDE
Departamento de Zoologia, Laboratório de Estudos de Lepidoptera Neotropical, Universidade Federal do Paraná—UFPR, Caixa Postal 19020, 81531-980, Curitiba, Paraná, Brasil. E-mail: zacca_butterfly@ymail.com

Abstract

A new species of Satyrinae butterfly from the Brazilian Savanna, *Magneuptychia flavofascia* **n. sp.**, is described based on adult morphological characters with a discussion about its placement within the genus.

Key words: Euptychiina, Lepidoptera, Satyrini, taxonomy

Resumo

Uma nova espécie de Satyrinae, *Magneuptychia flavofascia* **n. sp.**, é descrita para o Cerrado brasileiro, baseado em caracteres morfológicos de adultos, com uma discussão sobre o seu posicionamento no gênero.

Palavras-chave: Euptychiina, Lepidoptera, Satyrini, Taxonomia

Introduction

Magneuptychia was erected by Forster (1964) to included species without subapical ocellus on dorsal surface of hind wings and uncus more robust than other Euptychiina genera. In addition to type-species *Papilio libye* Linnaeus, 1767, Forster (*op. cit.*) included more seventeen species in *Magneuptychia* that still remain on genus (Lamas 2004), except *M. calpurnia* Felder, 1867, currently synonymized to *Pareuptychia lydia* (Cramer, 1777). Thereafter more eleven species were described and placed on *Magneuptychia,* but without major taxonomic modifications (Lamas 2004). The genus is considered a polyphyletic group related to *Caeruleuptychia* (Murray & Prowell 2005; Peña *et al.* 2006; Wahlberg *et al.* 2009).

When the senior author held the organization and curated of Satyrinae of the Coleção Entomológica Padre Jesus de Santiago Moure of the Departament of Zoology of Federal University of Paraná, Brazil (DZUP), a series of ten specimens of *Magneuptychia* has highlighted by the wings phenotype. These specimens belong to ex-collection of the German geologist and naturalist Heinz Ebert, which was incorporated to Lepidoptera collection of DZUP after his death.

The purpose of this paper is to describe a new species of *Magneuptychia* based on morphological characters of adults and to discuss its affinities with others representatives of the genus.

Material and methods

Antennae, labial palpi, legs and abdomen were soaked in a heated 10% KOH solution for 3–5 min, and wings were clarified using standard techniques. For a better understanding of the genus boundary, photos of the types (available on Warren *et al.* 2013) and morphological structures of new species were compared with the following

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taxa: *M. libye* (type-species), *M. pallema* (Schaus, 1902), *M. newtonii* (Hall, 1939), *M. gera gera* (Hewitson, 1850), *M. gera nobilis* (Weymer, 1911), *M. harpyia harpyia* (Felder & Felder, 1867), *M. harpyia batesii* (Butler, 1867), *M. probata* (Weymer, 1911), *M. tiessa* (Hewitson, 1869), *M. iris* (Felder & Felder, 1867), *M. lea lea* (Cramer, 1777), *M. tricolor tricolor* (Hewitson, 1850). The elements of wing pattern of *Magneuptychia* are illustrated in ventral view (Fig. 1). Genitalia terminology follows Oiticica-Filho (1946) and Niculescu (1973). Illustrations were made using GIMP ver. 2.8.2, and photographs of adults were taken with a DSLR Nikon D3100 camera. Maps were obtained using the DIVA GIS ver. 7.5.0 software (Hijmans *et al.* 2001).

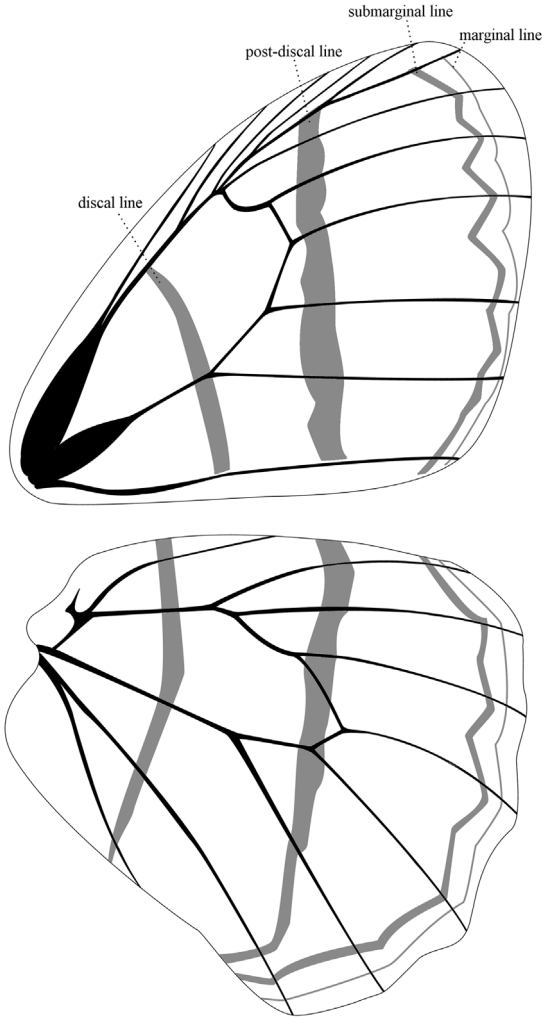


FIGURE 1. Wing pattern elements of *Magneuptychia.*

Results

***Magneuptychia flavofascia* Zacca & Siewert, n. sp.**
(Figs 2–20)

Type material. Holotype male with the following labels (separated by transverse bars): /HOLOTYPUS/ *Magneuptychia flavofascia* Zacca & Siewert det. 2013/ Parque do Gama, Brasília, [47º53'W, 15º 56'S], D[istrito] F[ederal], 1000m, Brasil, 17.VI.1972, Mielke & Brown *leg.*/ DZ 29.352/ (DZUP). Allotype female with the following labels (separated by transverse bars): /ALLOTYPUS/ *Magneuptychia flavofascia* Zacca & Siewert det. 2013/ Br[asília], [Distrito Federal], 12.IX.1968, ex-coll. H. Ebert/ DZ 29.354/ (DZUP).

Paratypes. *BRAZIL—Distrito Federal*: **Brasília**—16.XII.1968, 2 females, ex-coll. H. Ebert, DZ 26.484, DZ

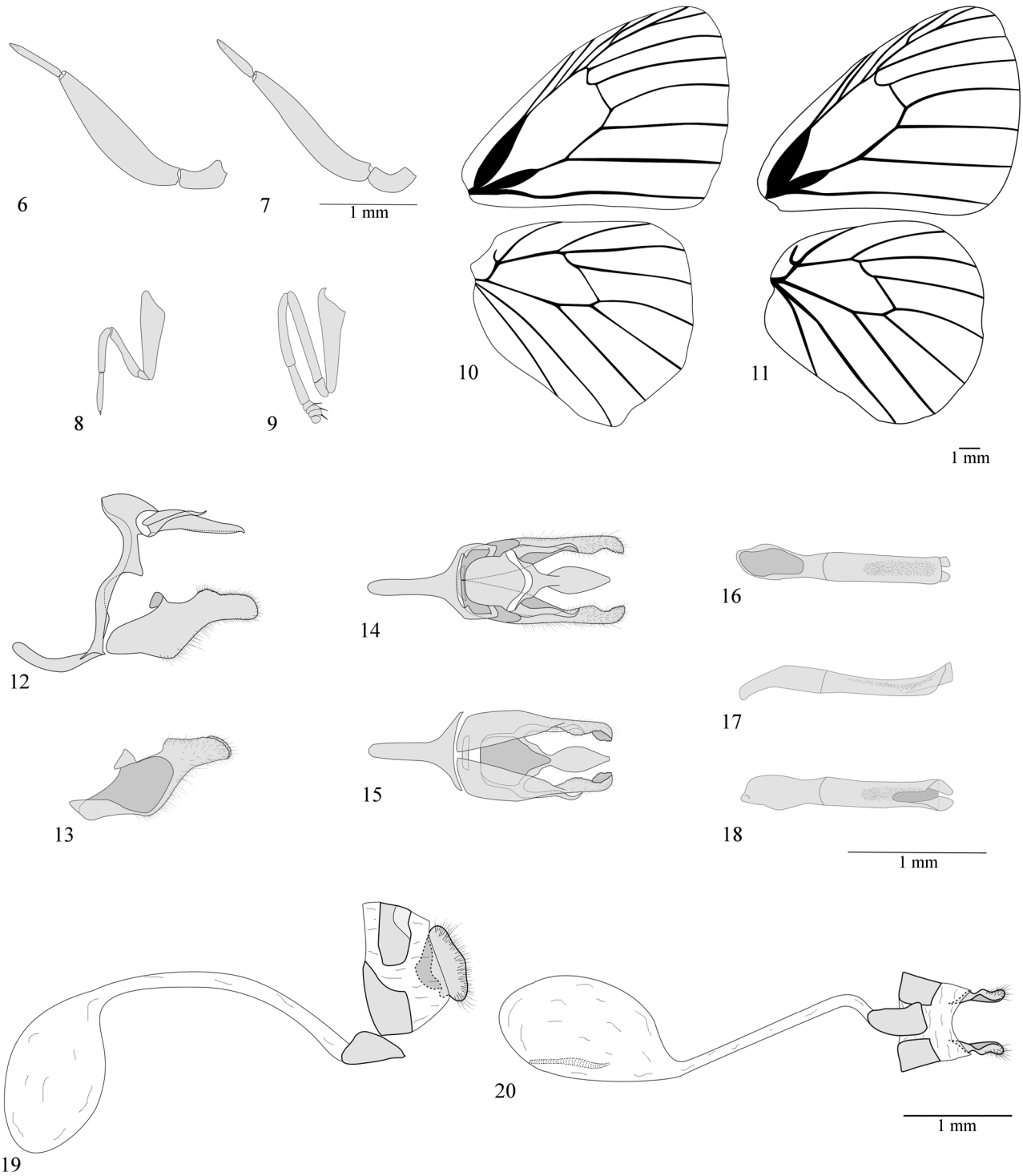
29.355 (DZUP); 12.IX.1968, 1 male and 1 female, ex-coll. H. Ebert, DZ 29.358, DZ 29.353 (DZUP). *Mato Grosso*: **Diamantino**—Alto Rio Arinos, Faz[enda] S[ão] João, 3.IX.1978, 1 female, Mielke & Furtado *leg.*, DZ 29.359 (DZUP); 4.IX.1977, 1 male, 300–400m, E. Furtado *leg.*, DZ 29.360 (DZUP). [unknown locality], no date, 1 male, ex-coll. H. Ebert, DZ 29.356 (DZUP); BP [unknown locality], 1 male, II.1968, ex-coll. H. Ebert, DZ 29.357 (DZUP).

Diagnosis. *Magneuptychia flavofascia* **n. sp.** can be distinguished from the others members of the genus by the presence of two rufous bands on both wings under side, the first one on discal region and the other on post-discal region; a creamy band on post-discal region on both wings under side; forewing under side with a developed ocelli in M_1-M_2 and CuA_1-CuA_2, a reduced ocellus in M_2-M_3 and other smaller and silver in M_3-CuA_1.

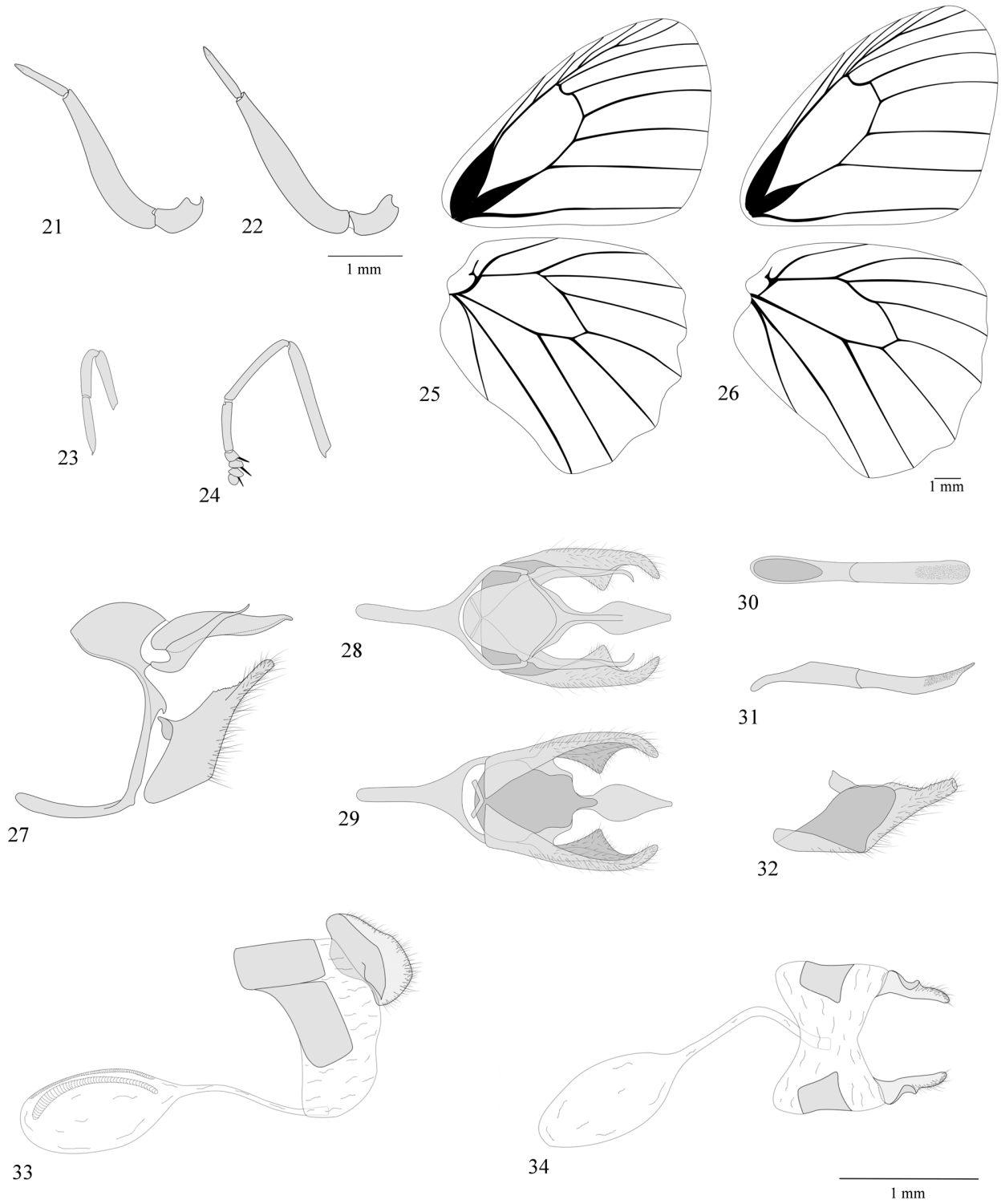
FIGURES 2–5. *Magneuptychia flavofascia* **n. sp.** 2–3. Holotype male, dorsal and ventral. 4. Allotype female, dorsal and ventral. 5. Summer form, dorsal and ventral.

Description. *Head*. Brown. Post-genal area light brown. Eye hairy, dark brown. Antennae brown, laterally white scales around the base of each flagellomere. Labial palpus mixed with brown and light brown, with elongated scales at first and second segment; about two times total length of eye; third segment thin and longer than first segment, second segment robust (Figs 6–7). *Thorax*. Uniformly brown. Legs with coxae, trochanter and femur light brown, tibia and tarsus brown; male proleg with femur, tibia and tarsus the same length (Fig. 8) and female with five tarsomeres and spines in the tarsomeres II, III and IV (Fig. 9). *Forewing, size and shape*. Length: 15–17 mm (n = 10). Triangular, costal margin convex, apex rounded, outer margin convex, tornus rounded, inner margin straight. *Forewing upper side* (Fig. 2). Brown. *Forewing under side* (Figs 3, 10). Ground color light brown with inner margin lighter. Narrow rufous band on discal area and other thicker on post-discal area in R-2A. Post-discal thick band creamy from R to 2A. Submarginal band dark brown from R to CuA_2. Ocelli developed in M_1-M_2 and CuA_1-CuA_2 with two white pupils, one reduced in M_2-M_3 with one white pupil and other smaller silver in M_3-CuA_1

without pupils. Submarginal line dark brown irregular. Marginal line dark brown and straight. Fringes light brown. *Hind wing shape*. Costal margin convex, apex rounded, external and inner margins straight. *Hind wing upper side* (Fig. 2). Subapical ocellus in CuA_1-CuA_2 with a white pupil, submarginal and marginal irregular dark brown line from Rs to anal margin. *Hind wing under side* (Fig. 3). Similar to forewing under side. Ocelli developed in M_1-M_2 and CuA_1-CuA_2, two reduced and silver in M_2-M_3 and M_3-CuA_1, and other smaller in Rs-M_1. Submarginal line irregular. Marginal line straight. Fringes light brown. *Abdomen*. Dorsally dark brown, ventrally light brown.



FIGURES 6–20. *Magneuptychia flavofascia* **n. sp.** 6–7. Labial palpi: 6. Male, 7. Female. 8–9. Forelegs: 8. Male, 9. Female. 10–11. Wings venation: 10. Male, 11. Female. 12–18. Male genitalia: 12. Lateral view, 13. Inner view of right valvae, 14. Dorsal, 15. Ventral, 16–18. Aedeagus: 16. Dorsal, 17. Lateral, 18. Ventral. 19–20. Female genitalia. 19. Lateral, 20. Ventral.



FIGURES 21–34. *Magneuptychia libye.* 21–22. Labial palpi: 21. Male, 22. Female. 23–24. Forelegs: 23. Male, 24. Female. 25–26. Wings venation: 25. Male, 26. Female. 27–32. Male genitalia: 27. Lateral view, 28. Dorsal, 29. Ventral. 30–31. Aedeagus: 30. Dorsal, 31. Lateral, 32. Inner view of right valvae. 33–34. Female genitalia. 33. Lateral, 34. Ventral.

Male genitalia (Figs 12–18). Tegume dorsally convex, subtriangular in lateral view. Uncus two times the length of tegume, laterally with a large base tapering at the apex, dorsally spatulated. Gnathos narrow and curved upwards with 2/3 the length of the uncus. Appendix angular developed. Anterior projection of saccus developed, cylindrical, almost same length of uncus. Valvae subrectangular covered by setae, apex rounded and dorsal projection with smaller teeth at apical third. Aedeagus slightly longer than the valvae and robust, anterior portion asymmetric, ventrally posterior portion bipartite, cornutus present.

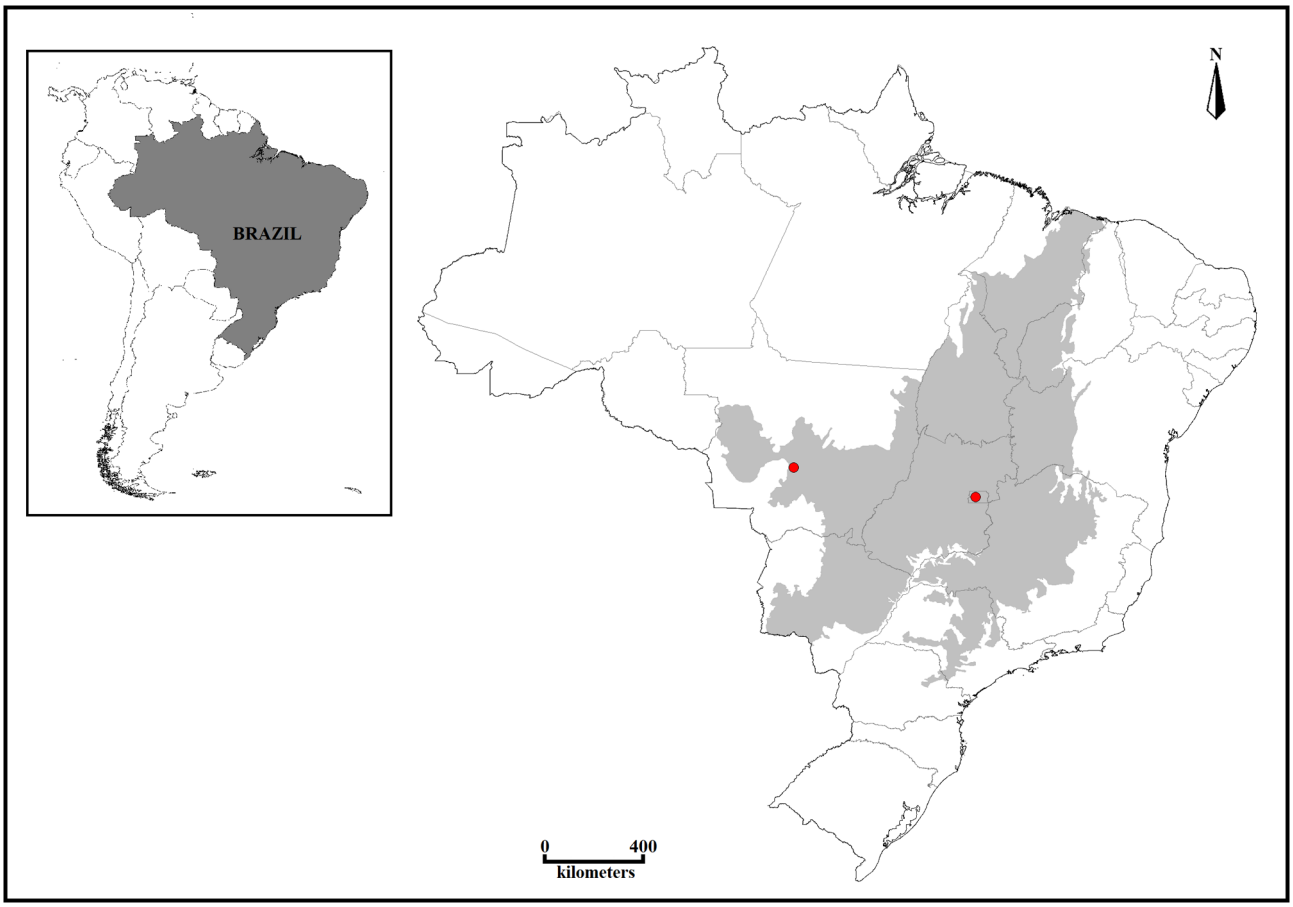


FIGURE 35. Geographical distribution of *Magneuptychia flavofascia* n. sp. Grey area in Brazil represents the Cerrado biome.

Female genitalia (Figs 19–20). Tergum VIII sub-squared, distal portion less sclerotized than basal portion. Papillae anales sclerotized at basal portion, recovered by setae at distal portion. Anterior apophysis absent. Sterigma rectangular and sclerotized in ventral view, not fusioned to sternum VIII. Bursa copulatrix totally membranous, with a pair of signa ventrally; ductus bursae about two times length of bursa copulatrix.

Variation. The ventral surface of both wings shows some variation in intensity of the color and thickness of creamy submarginal band, probably associated with seasonal forms of this species. Individuals collected on June (winter) presents this submarginal band more conspicuous than individuals collected on November (summer). Intraspecific variations in wings phenotype has been observed in others Euptychiina species (see Braby 1994; Freitas 2007; Freitas *et al.* 2010; Siewert *et al.* 2013).

Etymology. The specific epithet is formed by the combination of two words from Latin, *flavo* and *fascia,* referring to the color of band present on both wings in ventral surface.

Distribution. This species currently is known only from Midwest Brazil (Distrito Federal and Mato Grosso) (Fig. 35).

Host plant. Unknown.

Discussion. This species is placed in *Magneuptychia* due to its close affinities to *M. libye* (Figs 21–34), the type-species of genus, by the following characters: eyes hairy; forewing with dcm concave, m-cu dilated at base and 2A sinuous at base; hind wing upper side with a subapical ocelli in CuA_2-2A; uncus seen laterally with a large base tapering at the apex, seen dorsally spatulated; gnathos narrow and curved upwards; anterior projection of saccus developed and cylindrical; cornutus present. The wings phenotype differs mainly from *M. libye* and others *Magneuptychia* species by the presence of one narrow rufous band in basal region of ventral wings surface and other similar in post-discal region follows by a creamy conspicuous band with variable thickness. Morphological genital structures have been shown an important feature to delimitation of the Satyrinae genera and distinction between taxa. Species of *Magneuptychia* (except *M. iris, M. lea, M. tiessa* and *M. tricolor*) have a similar

morphological pattern of tegumen, uncus and gnathos, but differs mainly in valvae and aedeagus shape, including the cornutal patch. The valvae of *M. flavofascia* **n. sp.** resembles to *M. pallema* with a dorsal dentated projection, but these species can be easily distinguished by the aedeagus and wings phenotype. *M. flavofascia* **n. sp.** present a developed and sclerotized sterigma similar to *M. ocnus, M. iris, M. lea, M. tiessa* and *M. tricolor*, but this structure is absent in *M. libye* and others *Magneuptychia*.

In addition to the differences founded in the morphology of *M. flavofascia* **n. sp.** and *M. libye* the sympatric distribution also reinforce the identity of both species, which leads no doubt about a possible phenotypic variation or geographic races of *M. libye*. So far, it seems likely that *M. flavofascia* **n. sp.** is restrict to Brazilian Savanna, but more collected effort is necessary to know the real distribution of this species.

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